# Archaeology of
# INDIAN MUSICAL INSTRUMENTS

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**K. Krishna Murthy**

SUNDEEP PRAKASHAN
DELHI

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*Dedicated*
*To*
*The Lotus Feet*
*Of*
*Bhagavan Sri Sathya Sai Baba*

**K. Krishna Murthy**

# Preface

The study of the musical instruments is phenominal. Its astounding variety is prodigious and pulsating. Indian musical instruments a perfect fusion of imagination and unity of purpose is the truest and indubitable proof of the adroitness of the art manufacturers fitting well within the textual framework. It has evolved an attractive medium to glorify the artists' endeavour in the highest degree of the visual splendour of plastic art. In this way the present book entitled "*Archaeology of the Indian Musical Instruments*" is fascinating and fastidious. A comprehensive, substantial book as this on the subject dealing with the musical instruments known to the people lived during 2nd cent. B.C. to 6th-7th cent. A.D. thus becomes a welcome addition to the hither to known material on the subject.

In bringing out such study, the sculptural and mural data supplemented by the literary evidences form a very potential source. As major portion of the musical instrument is constituted of wood and since wood is the perishable material, the remnants of the ancient musical instruments are left only in the plastic representations and as such the study of the plastic art is abundant source for comprehending the ancient Indian Musical Instruments.

The sculptures of Sanchi, Barhūt, Amarāvati, Gandhāra, Nāgārjunakoṇḍa, Mathura and the paintings of Ajanta, impeccably portray variety of musical instruments known to the period under study. It is these sculptures and murals that form the basic data of my study and wherever possible other archaeological evidences like terracottas, coins *etc*., have also been taken into consideration to supplement and authenticate the study. These evidences have been assiduously corroborated with the literary ones while delineating the foreign impact or influence on Indian musical instruments. Meticulous care is bestowed in tracing out the foreign precursors of the Indian musical instruments drawing parallels from the ancient civilization of Sumerian, Assyrian, Hittite, Egyptian, Babylonian, Persian *etc.*

In the preparation of this book, I received valuable help in various ways from many people. Sarvashri A.V. Balakrishna Murthy, Head Clerk, S.K. Sundararajan, Selection Grade Stenographer, N. Selvapathy, Selection Grade Draughtsman, M. Theagarajan, Photographer, Gr. I and S. Ashok Kumar, Photographer, Gr. II, all of Temple Survey Project, (Southern Region), Archaeological Survey of India, Madras merit my gratitude for their spontaneous cooperation in accomplishment of this book. Shri A.V. Balakrishna Murthy neatly typed the Epilogue and Bibliography Chapters of the book, while Shri S.K. Sundararajan came out with his meticulous and tidy typing of the remaining and final chapters. To them I express my thankfulness. Shri Selvapathy provided pulsating line drawings for which I am beholden to him. The book is further enriched with the fine plates replenished by Sarvashri Theagarajan and Ashok Kumar to whom my thanks are due. But for the patient and persistent help of all these congenial staff, the present book would not have been in the present form.

All the illustrations reproduced in this book are by the *courtesy of the Archaeological Survey of India.* The copyright of these photographs rests with the Archaeological Survey of India. For this, I owe my indebtedness to the Director General, Archaeological Survey of India, New Delhi.

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Dr. K. KRISHNA MURTHY,

# Abbreviations

| | |
|---|---|
| *Ācā* | *Ācārṇga Sūtra* |
| *Anu. Sū* | *Anuyogadara Sūya* |
| *ASI* | *Archaeological Survey of India* |
| *AV* | *Atharva Veda* |
| *Baudh. S.S.* | *Bauddhyāyana Śrauta Sūtra* |
| *Bhag.* | *Bhagavatī* |
| *BDCRI* | *Bulletin of the Deccan College Research Institute* |
| *Bṛh. Bhā* | *Bṛhat Bhāṣya* |
| *Drah. S.S.* | *Drāhyāyana Śrauta Sūtra* |
| *Hir. S.S.* | *Hiraṇya Keśī Śrauta Sūtra* |
| *IAR* | Indian Archaeology—A Review |
| *J* | *Jātaka* |
| *JAOS* | *Journal of the American Oriental Society* |
| *JOI* | *Journal of Oriental Institute, Baroda* |
| *JNSI* | *Journal of Numismatic Society of India* |
| *JRAS* | *Journal of the Royal Asiatic* |
| *Kāt. S.S.* | *Kātyāyana Śrauta Sūtra* |
| *Kāth. G.S.* | *Kātyāyana Gṛihya Sūtra* |
| *Ku* | *Kumārasaṁbhava* |
| *M* | *Mānasāra* |
| *Mān. G.S.* | *Mānava Gṛihya Sūtra* |
| *Mān. S.S.* | *Manava Śrauta Sūtra* |
| *Nist. Cu* | *Nisitha Cūrṇi* |
| *PO* | *Poona Orientalist* |

| | |
|---|---|
| *QJMS* | *Quarterly Journal of the Mythic Society* |
| *Raghu* | *Raghuvaṁśa* |
| *Raysu* | *Rāyapaseniya Sūya* |
| *RLMBONN* | *Rheinisches Landes Museum Bonn* |
| *Rtu* | *Ṛtusaṁhāra* |
| *RV* | *Ṛig Veda* |
| *Sankh. S.S.* | *Śāṅkhyāyana Śrauta Sūtra* |
| *Vik* | *Vikramorvaśiyam* |

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## 1

# Introductory

Indian music has a hoary past. Closely connected with the Hindu religion, its origin centres round the chanting of the *Ṛig Vēda* and the *Sāma Vēda*, the oldest liturgy in India. This theoretical knowledge of the Indian music has been handed down from generation to generation as a legacy, in pupilary succession and is preserved in the descriptions of the early Sanskrit literature and in the forms of the ancient lithic and mural representations. Tradition dies hard and more so in a country like India. Consequently, the variety of musical instruments in India is phenomenal. Amazingly, they range from the gintang—which could be considered as the origin of zithers like the *rudra-vīṇā* to the delicate *sitar*. But its sparse or almost negative evidence from the excavated remains is undoubtedly due to its being fashioned mostly out of wood or similar other perishable material. We have to, therefore, depend solely on the plastic representation of musical instruments through the ages. For this, the sculptures of Sanchi, Barhūt, Amarāvati, Gandhāra, Nāgārjunakoṇḍa, Mathura and the murals of Ajanta form the data of our study.

### *Premise of the material study*

The following study of the musical instruments depicted in the sculptures and paintings in the early Indian art is based on the hypothesis that the artists of the early India while depicting the life scenes of the Buddha, Jātaka stories *etc.*, in the reliefs and murals, had their mind on the contemporary persons and things around them. Although they provided the figures and the back grounds in accordance with the requirements of the texts, in portraying the Jātaka stories on stone and murals, the artists were conscious of their limitations. They had to work within certain limits, showing, for most part only what the stories required. However, the artists have taken that much liberty as would not come into conflict with the general trend of the texts. It is just possible that they replenished the exact parallels with those occurring in the Jātakas and other life scenes from amongst their society and environment. Thus, the musical instruments like the many other items found in the sculptures and paintings may have been indigenous to the land to which they formed part.

Art is an expression of a society—its tastes, ideology and temper. It preserves for us the reflections of the spirit and the manners of the people who create it. In the following pages, an attempt has been made to describe in this direction the musical instruments depicted in the plastic art. An attempt has also been made to locate contemporary musical instruments with the literary descriptions and finally to confirm them from the archaeological evidences wherever, possible. All the sculptures recovered during the explorations and excavations at Sanchi, Barhūt, Amarāvati, Nāgārjunakoṇḍa, Mathura, Gandhāra and the murals of Ajanta have been taken into consideration for the study of the musical instruments of the period ranging from 2nd cen. B.C. to 6th-7th cen. A.D. The result of this study is evidently the visualisation of the musical instruments known to the Sātavāhana, Suṅga, Ikshvāku, Gandhāra, Kushāna and Vākāṭaka periods. In my books "*Material Culture of Sanchi*", "*Gandhāra Sculptures-A Cultural Survey*" and "*Nāgārjunakoṇḍa-A Cultural Study*" respectively, I have dealt with the musical instruments setting aside a separate chapter for them and these chapters have been fully utilised in the present book.

The present work "*Archaeology of the Indian Musical Instruments*" is intended to offer a complete account of the musical instruments known to the people who lived during the 2nd cen. B.C. to 6th-7th cen. A.D. Needless to say that in enumerating the musical instruments as reflected in the sculptural and mural representations, literary data has been of immense value. The antiquities of Harappa have been examined to understand the musical instruments of the

Indus people. The *Vēdic* brāhmaṇical and epic literature widened the scope for understanding the musical instruments of those periods. The work of Pāṇini has also been studied as it throws light on the subject of musical instruments.

The Jaina and the Buddhist sources have remained immense value in interpreting the musical instruments of ancient India. Similarly, Bharata's *Nāṭya Śāstra* describes a variety of musical instruments of the Ikshvāku period. Likewise, the early Tamil literatures-*Saṅgam* literature and the *Śilappadikāram* form a potential source for comprehending the musical instruments of the day. Besides, the *Mahābhāshya*, *Śukranītisāra*, *Mṛicchakaṭikā* have been critically examined to know about the musical instruments of the Kushāna period. For the Gupta period, all the important works of Kāḷidāsa had to be relied upon. Similarly, the *Mānasāra*, *Kādambari*, *etc.*, give ample information as regards the musical instruments known to the Vākāṭaka-Gupta period. Again, Yuan Tsang's account throws flood of light on the musical instruments known to the people of the 7th cen. A.D.

*Literary Evidence*

The ancient Indian literature[1] abounds with references to the musical instruments known through the ages. In the *Ṛigvēda*, *Yajurvēda* and *Atharvavēda*, we get references to the musical instruments like *Bākura*[2] (wind instrument), *Nāḍi*[3] (reed flute), *Piṇgā*[4] (bow-string), *Godhā*[5] (a kind of musical instrument), *Karkari*[6] (lute), *Dundubhi*[7] (drum), *Āghāṭi*[8] (cymbal), Vānīci[9] and *Gargara*[10] (musical instrument) and *Vādana*[11] (plectrum of a harp). Later, the *Saṁhitas* and the Brāhmaṇas besides the Upaniṣads also adduce to them at several places. The terms denoting musical instruments, like *Tūṇva*,[12] *Nāḍi*, *Viṇā*,[13] *Vāṇa*,[14] *Khanadavana* (reed-lute), *Bekura*[15] *Dambara*, *Lambana*, *Dundubhi*[16] (drum), and *Bhūmi dundubhi*[17] (earthen drum) occur. Likewise, *Bṛihadāraṇyaka Upaniṣads* refer to a number of musical instruments.

'The term *Bākura* referred to in the *Ṛigvēda* was a kind of wind instrument while *Bakura* denoted a conch probably used by the

Āryans. In the *Aitarēya Āraṇyaka*[18] parts of *viṇā* are described. They include *Śiras* (head), *udara* (cavity), *ambana* (sounding board) *tantra* (string), and *vādana* (plectrum). A *viṇāvāda*, lute-player is included in the list of victims at the *Purushamēdha* (human sacrifice).[19]

*Dundubhi* was evidently a drum which was used both in war and peace. It is said that a special drum known as "earth-drum" made by digging a hole in the ground and covering it with hide was used in the *Mahāvratariti*.[20] Similarly, *vāṇa* mentioned in the later *Saṁhitas* and *Brāhmaṇas* was another musical instrument, harp or lyre with hundred strings (*śatatantu*) used at the *Mahāvrata* ceremony.[21]

Several musical instruments find place in the *sūtras*. In the age of the *sūtras* both vocal and instrumental music were very popular. Especially, on the *Mahāvrata* festival, numerous musical instruments were played.[22] The instruments like *Kānda viṇā* (lute made of reed), *Godha viṇā* (lute covered with *Godha* skin), *Karkarikas vāṇā* (lute with hundred strings), *Tambala viṇā*, *Taluka viṇā*, *Pinchchola*, *Pinchchoras* (flutes), *Ghatakkarkari*, *Avaghalāriksa*, *Apathālalīka*, *Alabu*, *Kapisirshns* and *Āghātis* (cymbals) were all known.[23] In fact, the *Kathaka Gṛihya Sūtra*[24] ordains that bride should play during the pre-wedding rites on the musical instruments like *Nāḍi* (reed-pipe), *tūṇva* (wooden-flute), *Panva* (cymbal), *mṛdaṇga* (drum). Similarly, it is laid down in the *Mānava Gṛihya Sūtras*[25] that the harp (*viṇā*) should be played when brides ostentatiously sprinkled under the yoke of a chariot or a cart. Moreover, the same *sūtra*[26] asserts that four unwidowed women should play on a musical instrument *Nāḍi* during the pre-wedding rite.

As examples of musical instruments, Pāṇini in his *Ashṭādhyāyī* mentions *viṇā*[27] (lyre), *mṛdanga*[28] *madduka*, *Jhārjhara*[29] and *tūryānga*.[30] Those who played on *madduka* and *jhārjhara* were known as *maddukika* and *jhārjharika* respectively, while *dardurika* played on a drum made of earthen jar.[31] According to Pāṇinī, a player on an instrument is called *Parivādaka* whom Patañjali[33] in his *Mahābhāshya* considers as a lute player.

The great epics the *Rāmāyaṇa* and the *Mahābhārata* go a long way in supplementing the history of the musical instruments of the period. The musical instruments like *maḍḍuka*, *paṭāha*, *vaṁśa*, *vipañci*, *mṛdaṅga*, *pannava*, *Diṇḍima*, *Ādambara* and *Khalasi* are mentioned in the *Rāmāyaṇa*. The *vīṇā* was played either with a bow or a plectrum. On the battle fields *paṭāhas*, *dundubhis*, *aṅkas* (drums) were beaten with *kōṇas* or drum sticks.[34]

In the *Rāmāyaṇa*, Lava and Kuśa are said to have sung *Rāmāyaṇa* to the accompaniment of *viṇā*. The *Rāmāyaṇa*[35] and the *Mahābhārata*[36] lists out number of drums varying in sound and pattern. The *Mahābhārata*[37] is also turgid with references to the musical instruments. The warriors carried the conches with them in the battle fields to sound them before and after battle.[38]

Patañjali in his *Mahābhāshya* lavishly speaks of the musical instruments known to his period. The instruments like *mṛdaṅga* (drum) *śaṅkha* (conch), *tūnva* (flute), *vīṇā* with seven strings and *piṭhara* (a kind of saucer pan by which musical sounds are produced) get their mention at several places.[39] He calls *mṛdaṅga* specialist as *mṛdaṅgikah* (*Mṛdaṅga vādanaṁ śilpamānya mārdaṅgikah*)[40] whom Pāṇinī called *maḍḍuka* which is explained in the *Uasika* as *maḍḍuka vādanaṁ śilpamasy maḍḍukah* and tabor player *jhārjhara*.

Bharata's *Nāṭyaśāstra* makes scanty references to the musical instruments. He speaks of only two types of *viṇās*, *viz.*, *chitra* (a seven stringed *viṇā* played by fingers) and *bipañca viṇā* (a *viṇā* with nine strings and played by plectrum). However, the *Nāṭyaśāstra*[41] lays down the rules regarding playing the drums.

Much can be known about the musical instruments from the Jain and the Buddhist literature. The *Rayāpaseniya*[42] in fact enlists sixty musical instruments known to the Jains. They include *sankha*, *singa*, *sankhiya*, *kharamuhi peya*, *piripiriya*, *panava*, *padah bhambha* (also known as *dhakka*), *horabha* (also known as *mahadhakka*), *bheri*, *jhallari*, *dundubhi*, *muraya*, *muinga*, *nandi*, *āliṅga*, *kutumba*, *gomuhi*, *maddala*, *vīṇā*, *vipanci*, *valiaki*, *mahati*, *kacchabhi*, *citta vīṇā*, *baddhisa*, *sughosa*, *nandighosa*, *bhamari*, *chabbamari*, *paravayani*, *tuna*, *tumba* *viṇā*, *amota*, *jhanjha*, *nakula*, *mugunda*, *huddukki*, *vicikki*, *karada*, *dindima*, *kiniya*, *kadamba*, *daddariya*, *daddaraga*, *kalasiya*, *maddaya*, *tala*, *tāla*, *kamsatāla*, *ringirisiya*, *lattiya*, *magariya sumsumariya*, *vamsa*, *velu vali*, *parilli* and *baddhagd*.[43] The pipes (*vaṁśa*), *vīṇā* (*tanti*), clapping (*tala*) and the rhythmatic beating of the drum (*talaya*) following the instrumental music (*gaha*) invariably accompanied the music.

Indubitably, the people of the Jātaka period had keen ear for the music.[44] The master musicians (*gandhabbā*) like Guttila, Musila and Sagga lived in that period.[45] Among the musical instruments (turīyāṇī) *vīṇā* was most popular.[46] In the Jātakas *viṇā* formed part of an orchestral band[47] (*vīṇādīni turīyāṇi*). The seven stringed *vīṇā* mentioned in the *Nāṭyaśāstra* can be compared with that of the one mentioned in the Guttila Jātaka.[48] Regarding *vādita* we are supplied with a classified list of musical instruments which is more or less akin to that given in the *Kāmasūtra* of Vātsyāyana. The musical instruments coming under the *Pañcangika turīyam*[49] are listed as *Pāṇissara*, *Sammatala* or the cymbals, *kuṁbhathuṇa* playing on cups filled with water, various kinds of drums, *pheri*, *mūtiṅga*, *muraja*, *alambara*, *ānakā*, conches *etc*. *Sankhā*, *Panavadiṇdima*, *kharamukhaṁ*, *godhāparivādentikā*, *kutuṁpaiṇdimāni*,[50] *Veṇu* was the most favoured instrument among the wind instruments[51] There were beaters of drums and blowers of conches (*bherivādaka*, *saṇkhadhamaka*).[52]

Much can be known from the early Tamil literature about the musical instruments.[53] The oldest Dravidian term for "instruments"—as found in the Sangam literature—is *karuvi* which literally means a tool and in a musical context an instrument. The *Śilappadikāram*, a classic of second century A.D. gives a variety of drums (leather instruments) which include *Perikai* (a kind of kettle drum), *Padakam* (tom-tom), *iḍakkai* (a double-headed drum), *maddalam* (a kind of drum), *uḍukkai* (a hand drum like the hour glass), *Sallikai* (a kind of large drum), *karadikai* (a kind of drum), *timilai* (a kind of drum of fisherman), *kuḍamula* (an earthen-ware drum), *takkai* (tabour), *ganapparai* (a kind of drum), *tadāri* (a kind of drum), *tamarukam* (a little drum), *tannumai* (a kind of drum), *andari* (a kind of drum), *mulavu* (a drum), *chandra-valayam* (a kind of drum), *mondai* (a drum open at the end), *murasu* (a variety of kettledrum), *kan-vidu-tumbu* (a kind of drum), *nisālam* (one headed drum), *tudumai* (a kind of drum), *siru-parai* (a small drum), *aḍakkam* (a kind of drum), *takuniccham* (a kind of drum), *viraleru*, *pakam*, *upanakam*, *naligai* (varieties of drums), *parai* (the big drum), *tudu* (a small drum). Apart from these, the other instruments, presumably, made of leather, like *akuli*, *pandil*, *kodu*, *neduvankiam*, *kuruntumbu*, *tallaip-quarai*, *padalai*, *etc.*, are also mentioned.

Among the wind instruments, flute was very popular and the *Śilappadikāram* speaks of five kinds of flutes classified on the basis of their material like bamboo, sandal wood, bronze, and ebony. The terms like *van-kiam*, *kon-raiyan-kulal*, *ambalantini-kulal*, *mullaiyankulal*, all meaning a flute occurs in the Tamil literature. A good description of *vīṇā* (*yāḷ*) can be seen in *Purananūṟṟup-paḍai* (lines 4—18) and the *Perumpāṇāṟṟup-paḍai* (lines 4—16). *Adi-yal* or *perunkala* (*vīṇā* with 1000 strings), *periyal* (with 21 strings), *kakarayal* (with 19 strings), *sakoḍa-yāḷ* (with 14 strings), *sekottiyal* (with seven strings) were known to the ancient Tamils[54]. Apparently, in the time of the *Śilappadikāram*, *vīṇā* and flute and highest recognition among the musical instruments.

The *Śukranītisāra* considers *vādana* or playing on musical instruments as one of the sixty four *kalās*. It refers to *Gandharva vēda*, the science of music by which one can know of the various voices *e.g.*, *udātta anudātta*, produced by the instruments and the throat together with beats of tune.[55]

The poet Kālidāsa was familiar with all kinds of musical instruments classified into four groups.[56] At several places in his *kāvyas*[57] he refers to the musical instruments like *tūrya-vādya* (clarionet), *vallaki*, *alōday*, *vīṇā*, *veṇu* (flute), vaṁśakṛtya (flute), various kinds of tabors (*mṛdaṅgas*) like *puṣkara*, *muraja*, *dundubhi* (kettledrum), *ghaṇṭā*, and *jalaja* (conch sounded in peace and war). But he seemed to have a special liking for lute (*vīṇā*) and tabor (*muraja*). The God Śiva is said to have been awakened from his sleep by the auspicious songs of *kinnaras* who produced sweet strains of music from the wires of their *vīṇā* in the harmony with the melodious nodulations of their voice.[58] The *yaksha* imagines his wife as wiping tears, off the strings of her *vīṇā* to set them on tune before voicing forth her pangs of separation in pathetic melody.[59] He refers to the city Alaka which has been described by him as reverberating with the sound of the musical instruments like *mṛdaṇga* played by ladies.[60]

Sūdraka's play "the little clay cart" (*Mṛichakaṭikā*) also throws considerable light on the musical instruments in use. The *Saptatantrī vīṇā* is often alluded to in the play. Elsewhere, Cārudatta, interestingly enumerates the uses of *vīṇā*.[61] A reference to a flute with seven holes is also made *vēṇuṁ gāyāmī saptacchidraṁ*).[62] It is apprised that the sound of the *mṛdaṇga* when tapped with fingers tips resembles the rumble of clouds.[63]

Later text like *Mānasāra* also makes scanty references to the musical instruments. The terms like *vaṁśa*[64] *karuṇā-vīṇā* and *vīṇā* are referred to.

The accounts of the Chinese travellers offer an adequate information about the musical instruments prevailed in their time. Yuan Chwang refers to sounding drums and blowing horns, playing on flutes and harps.[67]

*Bāṇa*, in his *Harṣacarita* speaks of the musical contrivances like *śaṇkha* (conch), *vēṇu*[68] (limbel), *vīṇā*[69] (lute), *jallarikā* (tamborine), *vādya* (reed), cymbal (*tāla*), string drum, low ground lute *alōḍya-vadya*), *khala*[70] (the horn with brazen sound boxes). *Pāṭahkāla nāndi paṭaha* and conches were sounded in the early mornings to announce the day break.[71] In the *Kādambarī*,[72] Bāṇa informs how the musical instruments of various kinds were played at the time of the king's bath. This statement of his gets corroborated in the words of Yuan Chwang who says "when king goes to his bath then is the music of drums and stringed instruments, worship is performed then, and there are bathing and washing."

### *Classification*

"Any instrument" says Harrison[73] made or used for producing sounds, whether pleasing to ears or not, may be classed as a musical instrument." Sachs[74] classifies the instruments into idiophones, membranophones, aerophones and chordophones. But the traditional classification of the Indian musical instrument we get in our early Indian literature. The earliest Indian classification and that which followed traditionally was that of Bharata.[75] His *Nāṭyaśāstra* gives four groups of instruments : (i) *tata* (stringed), (ii) *ānadaha* or *avanaddha* (percussion), (iii) *śuśira* (wind), and (iv) *ghana* (solid). *Tata* is from the root *tan*-to stretch or tense; hence, instruments having some form of gut, wire *etc*., stretched to produce sound. *Avanaddha* means to be covered that is all instruments that have one or more faces covered with hide fall into this group. *Ghana-vādya* is solid. It does not require any further tuning once they are made. *Śuśira* literally means hallow. All instruments where wind is the producer of sound or the cause of excitement of any other mechanism come under this section.

Some have recongnized only three categories : *tata*, *vitata* and *tata-vitata*. Nārada gives three classes, *charma* (leather), *tāntrika* (stringed) and *ghana* (solid). Similarly in Jain a literature we get the classification of the musical instruments under four heads, namely, *tata* (stringed) like *vīṇā etc*., *vitata* or *ānaddha* (percussion) such as drums *etc*., *ghana* (concussion) such as cymbals *etc*., and *śuśira* (wind instrument) like lute.

In the Sangam literature (2nd to 6th century A.D.), five types were recognised, *tōrkaruvi*, *tuḷaik-karuvi*, *narampukkaruvi mīṭattruka-ruvi* and *kanchakkaruvi*. The first comprised drums-*tōl* (ride); *tuḷaik-karuvi* is the one with holes or a hallow and hence a wind instrument (*tuḷai* means hole); *narampu* is animal gut and therefore, stringed instruments come in this group; *mītattrukkaruvi* is the human voice; *kanchakkaruvi* is made of metal-cymbals for example. This system is parallel in detail to the old Sanskrit classification—*avanaddha*, *śuśira*, *tata*, *gātra* and *ghana*.

It is, however, the classification of the musical instruments of Bharata remained the same through the centuries except for some minor alterations in the names. For instance, *ānaddha* is substituted for *avanaddha.* Similarly, the word *vitata* (without strings) is also used instead of *avanaddha.* While studying the musical instruments in Indian art, the traditional classification of musical instruments by Bharata has been followed.

Functionally, three groups were recognised : *gītanuga*–suitable for accompanying singing, *nṛityanuga*—suitable for accompanying dancing, and *ubhayānuga*—suitable for both. Solo instruments were known as *śuṣka.*

### *General Chronological Evolution of the Instruments*

Musical instruments were not 'invented'. They developed slowly and comparatively much later than singing. They developed from rhythmically moving limbs, from stamping feet and slapping hands; the funds and feet were replaced by more effectual devices—wooden clapper-sticks or pounding bamboos–or the ground to be stamped upon yielded to some covered pit in the earth or to a felled and dug out tree. Such simple contrivances and the rattles that shook from the dancer's ankles or in women's hands were the beginnings of the first large class of instruments which the scientific classification calls the idiophones, or instruments of materials sonorous by nature without needing any artificial tension such as do strings and drumskins. Most of them are struck; but a good many are pounded, shaken, scraped, plucked, or even rubbed.

As a second class, primitive tribes created the aerophones, from the air which constitutes their main vibrating agent. The majority are wind instruments in the common sense, with the air vibrating inside the slender tube.

Most wind instruments belong to the families of flutes and of trumpets though only in a general way. The flutes are often mere whistles of bone or reed without finger holes, capable only of a single, screaming note and the trumpets roughly made of hallow stems or branches are often used as megaphones to be spoken shouted or wailed into or to mark the player's natural voice. Such marking of the natural voice is of the strongest indications that the instruments of the primitive people, were not so much tools of music, in the sense that we give this word, but rather magical charms. Tied into a complicated network of cosmological ideas and symbols of sun and moon, of male and female, of fire and water, they were supposed to help with their characteristic sounds and shapes, in driving away malevolent demons and in creating life, growth and bliss.

The densest network of such connotations surrounds the instruments of the third class, the membrano phones or drums where a bladder or skin, to be struck or to be rubbed, is tightly stretched across on opening. Many are kept as sacred idols and receive veneration and sacrifices. Their outer forms are numberless and betray, in all their variety, the derivation from two principal sources : the carved and hallowed tree and a lathel, earthen store pot (our modern military drums are ultimate offsprings of the tree and our kettle drums of the earthen ware pot). Apart from them, the frame drums (popularly called tombourine) have no actual bodies, but only hoops to serve as frames for the skins.

The fourth class, chordophones or stringed instruments, reach, in the primitive world, only preparatory stages. Most of them share their forms with the hunter's bow and a few with swinging traps for big game (where a flexible rod in the ground stretches a rope descending from its loose end to a covered pit). Other among the primitive seem to be degenerated types sunken down from higher civilizations rather than early developments.

In the high civilizations of the ancient orient, the magic connotations grow weaker but by no means disappear. Instead, a real instrumental music, quite rudimentary in primitive cultures, becomes independent and increasingly important. The classes of idiophones and membranophones yielded a good deal of their earlier preponderance to strings and wind instruments capable of playing maladies. The wind instruments form sets of tubes (pan-pipes), one for each note; or the player produces these notes by stopping the finger holes of one single tube. The stringed instruments in a similar way have as many strings as there are notes required. They are called open strings ; or the players produce these notes by stopping one single string at different places.

The earliest of the stringed instruments were the harp and the lyre. The harp, deriving from the musical bow had the plane of the sound board. The neck emerged from the end of the body, bent forward and sent the strings down to the sounding board. The lyre, on the contrary, had a yoke with arms and cross-bar instead of a neck to hold the strings. The harp spread from the ancient Egypt to China and evidently the prominent stringed instrument in India. The lyre on the other hand did not penetrate into China and remained rare specimen in India (with sole specimen in Gandhāra sculptures). It was confined to Medeterranean and the neighbouring corner of Asia. It became the principal instrument in ancient Israel (David's 'harp' as a translation of Hebrew *Kinnor* is a misnomer) and later in Greece, Etruria and Rome. The *Kithara* of the Greeks was the heavy, carefully joined instrument of professionals; their *lyra* was a lighter variety for the benefit of beginners and amateurs. The East Asia devised a Zither (or neckless stringed instrument) in a lengthy rectangular form with silken strings to be turned by triangular shiftable bridges. It is still alive and highly esteemed as *ch'e* of China and *koto* of Japan.

Around 2000 B.C. some country in or near Asia Minor produced the lute, consisting of a resonance body with a neck on which the various notes of the melody were "stopped" by pressing the fingers on the proper places of one string or two. This family, from which derive the lutes all over the central belt, from Japan to Spain, became particularly important because it led to the discovery of an exact mathematical fixation of musical intervals. Hence the name *kankon* or rule the Greeks bestowed on it.

Almost all the stringed instruments were plucked, either with bare fingers, or with anplectrum of some kind. Bowing, which probably started in Central Asia, became known only thousands of years later ; its earliest evidences date from the end of the first millennium A.D. and the "fiddler Nero" has no historical backing.

Wind instruments played a minor role in the ancient orient. But while the various types of flutes were known all over the world, reed pipes became the almost exclusive property of the Medeterranean and the south-west of Asia, including India. They were either clarionets, with single reed to interrupt the player's wind, or aboes, with double reeds as the mouth piece. Both kinds were usually blown in pairs with the mouth pieces inside the mouth at the same time. Mostly, one pipe seems to have played the melody and the other pipe a sustained "drone" or pedal note, as do our bagpipes. For the players' mouth was kept independent from regular respiration and used as a wind chamber, while the nose took care of breathing in and out and of feeding the mouth as much as necessary. Later, some types of reed instruments, for example, the Indian snake charmers' pipes, facilitated this method by inserting the tubes in a calabash to serve as an artificial wind chamber, and still later, some instruments replaced the rigid calabash by a flexible bladder or skin and became bagpipes. The earliest evidence of bagpipes dates from the Christian Era.

Horns and trumpets had two manufacturing centres : one was Mangolia, which fed all Asia and later even Europe ; the other was Etruria, which fed the Grecian world and Rome especially the Roman Army.

The idiophonic class developed, in east Asia, an important family of chimes, or sets of well-tuned sonorous bodies, of bamboo tubes or wooden slabs (xylophones), of porcelain bowls, of metal slabs, or gongs and of bells. Several of them have found their way to the west.[76]

## TABLE

## Showing the Classification of Musical Instruments Depicted in Early Indian Plastic Art.

| *Stringed* (*Tata*) (*Cardophones*) (1) | *Percussion* (*Anaddha*) (*Membranophones*). (2) | *Wind* (*Śuśira*) (*Aerophones*) (3) | *Solid* (*Ghana*) (*Idiophones*) (4) |
|---|---|---|---|
| 1. Bow-shaped or Harp-shaped *vīṇā*<br>2. Guitar type of *vīṇā* or lute<br>3. The straight board *vīṇā*.<br>4. Lyre (*lyra*)<br>5. Sambuca-A triangular stringed instrument | (i) Tabular Drums<br>(a) *Aṅkya mṛdaṅga*<br>(b) *Āliṅgya mṛdaṅga*<br>(c) *Ūrdhva mṛdaṅga*<br>(d) *Muraja*<br>(e) *Mardala*<br>(ii) Kettle Drum.<br>(a) *dundubhi*<br>(iii) Frame Drum.<br>(a) *Paṭaha* (*Daph*)<br>(b) small hand drum. | (i) Flute (*vēṇu*)<br>(a) traverse or Horizontal flute.<br>(b) End flute or vertical flute.<br>(ii) Trumpet (*Tūriya*)<br>(iii) Conch (*Śaṅkha*)<br>(iv) Whistles. | (i) Clappers.<br>(ii) Rattles.<br>(iii) Sliding rattles,<br>(iv) Bells.<br>(v) Cymbals. |

* This traditional classification of the musical instruments has been followed chapterwise in this book.

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2. *RV.*, IX, 1, 8.
3. *RV.*, X. 13, 5, 7.
4. Hillebrandt take's *piṅga* as some other instrument other than the one mentioned in the *Rig Veda* (*Vedische Mythologie*, 1, 144 n.
5. *RV.*, X, 28, 10.11; *AV.*,viii, 69, 9; *vide* Hopkins, *Journal of the American Oriental Society*, 17, 53; *AV.*, IV.3,6.
6. *RV.*, ii.43,3; *AV.*, 37,4. Cf. XX. 132, 3.8.
7. *RV.*, i.28,5; VI.47, 29.31; *AV.*, V.20, 1 et. Seq.
8. *RV.*, X, 146,2; *AV.*, IV. 37.4 (*āghāṭi*). Cf. Zimmer, *Altindisches Lebem*, 289.
9. *RV.*, V, 75, 4.
10. *RV.*, viii, 69, 9. Cf. Hillebrandt, *Vedische Mythologie*, I. r. 1; Zimmer, (*op. cit.*, 2 8 9).
11. *Aitareya Āraṇyaka*, iii.2,5; *Śāṅkhāyana Āraṇyaka*, viii, 9; *Śāṅkhāyana Śrauta Sūtra*, xvii.3, 14 *etc.*
12. *Taittiriya Saṁhita*, vi, 1, 4, 1; *Maitrayaṇī Saṁhitā*, iii. 6, 8; *Kāṭhaka Saṁhitā*, xxiii.4; XXXIV, 5 (*Indische Studien*, 3.477); *Pañcaviṁśa Brāhmaṇa*, VI.5,13; *Taittirīya Brāhmaṇa*, iii, 4.1, 15.1; *Nirukta*, XIII, 9.
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15. *Pañcaviṁśa Brāhmaṇa*, 1.11.
16. Macdonell & Keith; *op. cit.*, Vol. I, p. 368.
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18. iii, 2, 5; Cf. *Śāṅkhāyana Āraṇyaka*, VIII. 9.
19. *Vājasaneyi Saṁhitā*, XXX, 20; *Taittirīya Brāhmaṇa* iii. 4, 15, 1.
20. *Kāṭhaka Saṁhitā*, XXXIV, 5 (*Indische Studien*, 3,477); *Śāṅkhāyana Śrauta Sūtra*, XVII, 14, 11; *Aitareya Āraṇyaka*, V. 1, 5; Hillebrandt, *Vedische Mythologie*, 1, 148, n. 2; Fried laender, *Śāṅkhāyana Āraṇyaka*, 29, 45.
21. *Taitterīya Saṁhitā*, VII, 5, 9, 2; *Kāṭhaka Saṁhitā*, XXXIV, 5; *Pañcaviṁśa Brāhmaṇa*, V. 6, 12; XIV, 7, 8; *Aitareya Āraṇyaka*. V. 1, 4 *etc.*
22. *Āpastamba Śrauta Śutra*, XXI, 17-20: *Kaṭ. S.S.*, XIII, 2-3; *Śānkh. S.S.*, XVII, 1-17.
23. *Mān. S.S.*, *Kāt. S.S.*, XIII, 3, 2; *Baudh. S.S.*, XVI, 21; *Śānkh. S.S.*, XVII, 3; *Āp. S.S.*, XXI, 1, 17, 12; *Hir. S.S.*, XVI, 6, 21; *Drah. S.S.*, XI, 2, 6-8.
24. *Kath. G.S.*, 17, 2.
25. *Mān. G.S.*, 1, 10, 7.

26. *Ibid.*, 1, 9, 29.
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35. *Rāmāyaṇa*, V. 10. 38: V. 11. 6; V. 10. 4; VI. 57. 28; V, 50. 62; II. 39. 41;
36. *Mahābhārata*, VII. 82. 4.
37. *Ibid.*, VII. 82. 4; Also see *JAOS*, Vol. 13.
38. II, 2, 34, p. 435, L. II.
39. II, 2, 34; p. 435, L. 11.
40. IV, 4, 55; p. 332, L. 5.
41. *Nāṭyaśāstra*. p. 73-74.
42. *Rāyasu*, 63 and 64.
43. *Bṛh. Bhā.* Pi., (p. 12), *Bṛh. Bha.* Pi., 24; *Bhāg.*, 54, *JI*, VA, 3, 3, p. 145a; *Jambu*, 2, p. 100f; *Anu. Su.* 127; *Nistcu.*, 17, p. 1158; Aca, 11, 391, *The Sūya*, 4, 2, 7; *Sarngadeva's Saṅgīta Ratnākara*, Chap. 6.
44. *J*, V. p. 290; *J*, 1, p. 362-G-80.
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50. *J*, II, p. 344; V, p. 390-G. 206; IV, pp. 217-G, 1198; 277-G 1199-1200, 580-G 2389-90.
51. *J*, IV, p. 284. See *Ācārāṅga Sūtra*, II, III-4.
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55. *Śukranīti*, 175-176, p. 154, chap. IV Section III, Eng. translation by Benoy Kumar Sarkar-*Sacred Books of the Hindus*. Series, Vol. XIII.
56. ततं वाणादिकं वाद्यं आनद्घ मुरजादिकम् ।
    वणादिकं तु सुषिरं कास्यतालादिकं घनम् ।।
57. *Raghuvaṁśa*, III. 19; IV. 9; 56; VI, 9; VII. 63, 64; VI, 9; VII, 41; VIII. 41, ii, 12; VIII. 35; X. 76; XIII. 40; XVI. 13; XVI. 87; XIX, 14, 55, 11, 12. *M.P.* 45, V. 23. VI. 56; *Rtu.* 1.8. 1.3; *Māl*, P. 21: 1. 21; *M.U.* 3; *KU.*, VI, 40, 1, 23; *Vik.*, IV. 12.

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## 2

# Stringed Instruments (Tata) : Chordophones :

The stringed instruments owe their existence to the musical properties inherent in an elastic filament when it is made to vibrate regularly by being suitably energized while stretched between two fixed points. The tension length, thickness and mass of the filament or string all affect the rate of vibration and consequently the note it will produce. The shorter or tensioned the string, the higher the note; a heavy string produces a lower note than a lighter one of the same length and tension.[1]

### (i) *Stringed instruments* : (*Tata*) :

The stringed instruments represented in the early Indian art include (a) bow-shaped or harp-shaped *vīṇā*, (b) the guitar type, (c) the straight board *vīṇā*, (d) *Lyra*, (e) *samabuca*. One can see the unmistakable foreign impact on some of the Indian stringed instruments portrayed in the early Indian art. In the culmination of this, evidently the Indo-Roman trade contacts played a vital role. It is well-known that the preceeding and succeeding centuries of the Christian era witnessed abundant Indo-Roman trade contacts. All this reflected intensely on the material culture of India in the early centuries of the Christian era.

### (a) *Bow-shaped or harp-shaped vīṇā* :

"In the main line of evolution of stringed instruments" says Harrison, "there can be little doubt that the "musical" must be given a prominent position and that this inturn had its origin in the twanging of the string of the hunter's bow."[2] These are the most interesting instruments of the Ancient Near East, thanks to their elaborate structure, decoration, variety and subsequent diffusion both westwards into the Mediterranean countries and eastward into Asia.

However, their depictions in the early Indian art are prolific. The bow-shaped *vīṇā* occurs in the reliefs of Sanchi either as solo instrument[3] or an accompaniment to dancing[4] or song or music party.[5] The best example of the harp as a solo instruments can be seen in the panel[6] illustrating "Indra's visit." In this the ministrel Pañchaśikha is shown with a harp held horizontally with the tail piece in his right hand, while his left hand finger nails (*agganakheh*) are playing on the strings (Pl. 1). This process of sounding the strings softly with the finger nails was technically known as '*sāraṇa*'[7] The harp has a curved board[8] (*ambhaṇa*) stretching into an up-standing curved arm (*viṇādaṇḍa*) terminating into a round head (*śiras*). Owing to the rough representation of the strings of the harp, it is difficult to ascertain the number of strings.

In the scene[9], portraying 'Māra's army', a demon is shown as playing a harp (Pl. 2: Fig I, 1) in the accompaniment of dance and song. He is seen holding the harp in horizontal position on his left thigh. He is playing the harp with his left hand finger nails while singing. The harp has a curved board extending into an upstanding curved arm with round head. The strings are stretching one over the other, from the arm to belly, passing through the holes (*chhidrāṇi*) provided in the hallow surface of the belly (Pl. 2: Fig. I, 1). As the strings are reaching the sound board (*pokkhara*), one over the other instead of side by side, it has not been practicable to use bridge (*paṭṭa*) in the harp. The harp has five strings (*pañca tanṭri vīṇā*).

The stringed harp was also played upon in the music parties as is known from the scene[10] depicting "the six *Deva Lokas*" (Pl. 3). In this case, *vīṇā* player (*vādaka*) is a female musician and appears four times. This harp is exactly similar to the one described above. However, in this case, the harp has seven strings and can be identified as the *sapta tanṭrī vīṇā* which was also known as the *Parīvādinī* or the *Vipañci vīṇā*,[11] Another example of *sapta tanṭrī vīṇā* occurs in the scene[12] depicting the "Episode of Nagamuchalinda". This *vīṇā* is exactly similar to the one described above. A female musician is shown playing upon it. The chords of the *vīṇā* are being plucked by her right hand, probably by means of a plectrum (*kōṇa*). The process of sounding the strings with the plectrum was known as *ghaṭṭana* or konāghātā.[13] We do also get references to the *vīṇā* of hundred strings in the *Dhamma-Aṭṭhakathā*.[14]

At Barhūt also the harp occurs either as a solo intsrument or an accompaniment to dancing. A clear example of the harp as a solo instrument can be seen, in the hands of a lotus nymph *Padumachchharā* (Pl. 9; Fig. II, 1).[15] Although, the sculpture is mutilated, one can easily make out the seven strings (*saptatantrī*) of the harp. Again, the harp is shown used as solo instrument in the bas-reliefs depicting Indra-sāla-guha[16] and the Andabhuta Jātaka.[17] In the panel representing Indra sala-guha, the minstrel Pañchaśikha appears with a bow-shaped harp. Similarly in the bas-relief portraying Andabhuta Jātaka, a harp is seen in the hands of a minister.

In the scene[18], portraying "Employment of the nymphs by Māra to tempt the Buddha" the harps are being played in the accompaniment of dance. Two lady musicians are shown playing the harp. The harp is made to rest on their laps and the chords of the *vīṇā* are being plucked by their right hand, probably by means of a plectrum (*koṇa*) (Pl. 10).

Another best example of bow-shaped harp played in the accompaniment of dance can be seen in the bas-relief portraying[19] "The Vijayanta Palace and the Sudharma Hall of the gods of the thirty-three." A lady musician is shown as playing harp. She is holding the harp in slanting position on her left thigh. She is playing the harp with her left hand fingers. The harp has a curved board extending into an upstanding curved arm with round head. As seen in the other cases, the strings are stretching one over the other, from the arm to belly, passing through the holes provided in the hallow surface of the belly (Pl. 11).

It may be noted that the representation of harp in the Barhūt sculptures are comparatively less to that of the representations in the

Sanchi reliefs. However, this may not be due to its less popularity at Barhūt. Perhaps the Buddhist themes and scenes selected at Barhūt might not have warranted the prolific depiction of the harp in the Barhūt reliefs.

At Amarāvati the harp appears either as a solo instrument or in accompaniment to dancing or music parties. The best example of a harp used as solo instrument is depicted on a railcross bar.[20] In the scene portraying "monks and laity worshipping Buddha as a pillar or Fire (*Agniskanda*)" a male musician is shown playing a harp. It is made to sling from the right shoulder. He is playing the harp with his right hand fingers. Owing to the rough representation, the exact number of strings of the harp cannot be made out (Pl. 14; Fig. III, 1). Again. the harp is shown as a solo instrument in the panel[21] representing music in harem. A male musician is shown playing a harp. It is seen held in horizontal position and is made to dangle from the right shoulder by means of a strap. The strings of the harp are stretching one over the other from the arm to the belly. They pass through the holes in the hallow surface of the belly (*sivaramamurti, XIII, 3*),

In the scene[22] portraying Māndhātu Jātaka two lady musicians are shown playing the harp with *koṇas* in the accompaniment of other musical instruments like conches, drums *etc*. The *koṇas* used by them for playing the harp are considerably thick and long and evidently the *koṇāghāta* should have been vigorous (Pl. 15; Fig. III, 2). The harps are held in slanting position on their laps.

The clear example of the harp played in the accompaniment of music and dance occurs in the panel[23] revealing music and dance festivities. A lady musician is show playing on a harp. She is holding the harp in a slanting position. The chords (*tantrī*) are being plucked by her right hand by means of plectrum (*koṇa*). The strings are stretching one over the other from the arm to the belly. The top string (*bhamaratantrī*) can be easily distinguishable (*sivaramamurti, XIII*, 7). In another place in the scene[24] revealing "Suddhodhana sends another and other messengers" a similar example as described above is met with. Here also a lady musician is seen playing on a harp holding exactly in the similar manner as seen above. The only difference seems to be that in this case she is playing the harp with her right hand.

The bow-shaped *vīṇā* occurs in the Nāgārjunakoṇda more than once. In the panel[25] illustrating 'Sagata and Nāga of the mango ferry', a female attendant is shown holding a harp in a slanting position with the tail-piece in her left hand, while the chords (*tantrī*)[26] are being plucked by her right hand, probably by means of a plectrum. The strings are stretching one over the others from the arm to the belly forming, as it were, arcs to the crescent of the whole frame. They pass through the holes in the hallow surface of the belly (Pl. 24; Fig. IV, 1). However, the bridge (*paṭta*) is absent. It is not possible to use *paṭṭa* on the harp-*vīṇā* as the strings do not reach the sounding board side but one over the other.[27] It is also not possible to know the number of strings due to rough representation of the harp. However, the top string the *bhamaratantī* (beestring) can be easily distinguishable. As this would be on the top, this way possibly the longest of the strings giving the lowest 'note'.

The best example of the harp as a solo instrument to be seen in the panel[28] illustrating 'the Buddha visited by Indra and the minstrel Pañchaśikha' (Pl. 25). In this panel' Pañchaśikha is shown with a harp held horizontally with the tailpiece in his right hand while his left hand fingers are playing on the strings. As to the other description of the harp, it exactly tallies with the above one. The *vīṇā* is made to dangle by means of a strap probably of leather (*carma*) from Pañchaśikha's left shoulder (Pl. 25; Fig. IV, 2). The music and dance are forbidden to the Buddhists by the *Vinaya* texts. In strict conformity to this injunction in the Buddhist scriptures, the artist has realistically sculptured some Bodhisattvas in the panel with their ears shut by their hands.

This stringed harp was also played upon in the procession to the accompaniment of dance as is known from the panel[29] depicting 'the Bodhisattva descending from the heaven in the form of the white elephant.' In this case, the *vīṇā* player (*vādaka*) is a god. This bow-shaped *vīṇā* is exactly similar to the one described earlier. The harp is shown slinging by means of a leather strap from his left shoulder.

The bow-shaped *vīṇā* occurs in the Gandhāra sculptures at several places. It appears in the reliefs either as a solo instrument or an accompaniment to dancing or song or music party.[30] Generally, it is seen being played by lady attendants, Nāginis, celestials and Pañchaśikha, the renowned harpist of India either by finger nails *agganakheh* or by means of plectrum, *koṇa*. In one instance,[31] the harpist Pañchaśikha is shown with a harp, held, in a slanting position on his right thigh. The plectrum *koṇa*, held in his right hand, is lifted suggesting his action, while his left hand fingers are gently playing on the strings. The harp in this case is used as an accompaniment to a song. As for the description of the harp it tallies exactly with the earlier described ones. The harp has four strings (Fig. V, 1). The Gandhārians as is evident from the reliefs, appeared to have favoured most the four-stringed harp. However, a harp with six strings is also not wanting. The panel, depicting a sleeping woman, represents a lady attendant playing upon a six-stringed *vīṇā*.[32]

At Mathura the decline of the popularity of the harp is apparent.. However, the best example of the bow-shaped harp can be seen in the sculpture[33] portraying "the music party at Nemesa's Feet", a female musician is shown playing upon a harp with her left hand fingers. She is holding the harp in slanting position on her left thigh. The harp has a curved board stretching into an upstanding curved arm terminating in round head (*śiras*). The strings of the harp have stretched one over the other, from the arm to belly, passing through the holes provided in the hallow surface of the belly (Pl. 28). The harp is a *pañca-tatrīvīṇā*.

An example of the harp as a solo instrument gets its representation[34] on a *toraṇa*. A male musician is seen playing upon a harp. He is seen holding the harp in horizontal position on his thighs. He is playing the harp with his left hand finger nails (*agganakkeh*). As regards the other details of the harp it is not possible to discern owing to its rough representation. (Pl. 29).

At Ajanta the representation of harp is quite interesting. There are a couple of representations of this variety of multi-stringed *vīṇās*. It comprises of a curved board (*ambhaṇa*)[35] sometimes hooked to which the strings are tied (Fig. IV, 2).[36] In the panel revealing conception scene[37] this type of musical instrument is hung on the wall but from its representations elsewhere it appears that it was held on the lap by the player with the tail-piece in the hand and the board resting on the right thigh. It usually had seven strings and can, therefore, be identified as the *saptatantrī vīṇā* which was also known as the *parivādinī* or the *vipañcī vīṇā*.[38] It was a favourite instrument of kings during Gupta period as Samudra Gupta, praised in the Allahabad *Praśasti* for his skill in music, is shown playing it on his '*vīṇā*-player' type of coins.[39]

This type of harp-shaped *vīṇā* was evolved, evidently, on the principle of bow and resonator as it would be seen from its plastic representations. It occurs as early as in the prehistoric paintings of Central Asia,[40] which all the more supports the contention of Sivaramamurti that this harp was fashioned after the hunting bow, having the strings of gut and may be regarded as the pre-runner of all the musical instruments in the world.[41] In ancient Egypt, the bow harp was called *bjn* or *bin* which becomes *vini* in Koptic.[42] In fact, the musical instrument harp has a great antiquity.

The Sumerian harp is bow-shaped recalling its origin : the musical bow. The sounding-box is constituted either of the whole bow or the lower part of it. The musician holds it against his shoulder.[43] (Fig. VII) with the strings away from him. He plucks them with his fingers. Beautiful harps, embellished with gold and semi-precious stones were excavated in the Royal Cemetry Ur (Fig. VIII). The great number of the strings, varying from eleven to fifteen, implies a highly developed music. Some musicologists have inferred from the harps with only four or five strings depicted on seals and plaques that these were the original type and that music was in the pentatonal or tetratonal stage. But the small number of strings is more likely to have been due to the impossibility of representing more on such small-scale objects the remains excavated show the real number of strings.

In Egypt the harp is the most favoured instrument. It is essentially the Sumerian type, only diversified in the dimensions of the soundbox. It is difficult to state where the instrument originated. It seems probable that the Sumero-Elamite instrument, found at Chogha Misha as early as the fourth millennium, and the Egyptian one, which began to appear under the fourth dynasty, had one and the same origin.[44]

It is quite possible also that both could have evolved independently from the more primitive musical bow. A type, intermediary between the bow and the harp, has been found in modern Afghanistan, represented on a specimen in the Museum of Arhus University, Denmark and another, uncatalogued, in the former Kunstkammer, Leningrad consists of a bow fixed to an oblong sounding-box. The connection is still obvious between the musical bow and the earliest Egyptian harp, with its arched neck comprising the entire length of the instrument and penetrating at the base into the half-ovoid sounding-box, which resembles the ground resonator attached to the ethnographic musical bow[45] (Pl. 35). In the Middle Kingdom, the harps are covered with abundant decoration. In the New Kingdom enormous instruments have as many as eighteen strings and are played standing[46] (Fig. IX). The sounding-box now comprises the whole of the lower half of the instrument. It has not only painted motifs but sometimes also a sculptured head of a Pharaoh. A second type is portable, its neck ends in a fine sculptured head and the curve of the arch is deeply concave[47] (Pl. 36). A third category, even lighter,[48] is called by musicologists the 'shoulder harp', carried as it is on the left shoulder. To play it the musician holds it either in that position or half way down his arm, but with the strings still facing outwards, away from him thus placing it within the category of the vertical harp.

A second type of harp appears on the Bismya Vase.[49] This harp is held horizontally. This sounding-box is held under the left arm and is elongated into a curved neck, both forming an arch to which strings are attached. This harp is played with a stock-shaped plectrum.

The horizontal harp was taken over by the Babylonians,[50] (Pl. 37) either without change or with the arch or bow replaced by a support struck at an angle into the forepart of the sounding box.[51] (Pl. 38) This angular horizontal harp was known in Iran contemporaneously with the Sumerian period in Mesopotamia. Later it is commonly depicted on Assyrian and Elamite reliefs.[52] In its bow-shape type it spread widely both eastwards, to India, Burma and Java, and westwards to Minoan Crete, ancient Greece and Rome (Pompeii), but in the west it remained rare. Its presence in black Africa is due to the commercial relations of that continent with Indonesia in the Middle Ages.

In India the harp is the most favoured instrument. The early Indian art teems with the representations of the harp. The early sculptures of Barhūt,[53] Sanchi,[54] Pitalkhora,[55] Pawaya,[56] Amarāvati,[57] Nāgārjunkoṇḍa,[58] Goli,[59] Mathura[60] and Gandhāra[61] depict harp. It continues in the 4th-5th century A.D., and occurs on the *vīṇāvādana* coin type of Samudragupta.[62] A terracotta figurine of the Gupta period discovered at Rupar illustrates a *vīṇā* of harp type.[63] It wanes thereafter probably giving place to the guitar type.[64] which becomes very popular from 6th cen. A.D. onwards.

But one noteworthy feature of the harp type *vīṇā* is that as early as in the first cen. A.D., it appears in the frescoes in the Samarkand and on a frieze slab from Airatem in Uzebekistan.[65] Later, it travels to South-East Asia and still survives in Burma by the name Saun[66] and among the Afghan tribes on the north-western frontiers of the subcontinent.

In the stringed instruments of the early Indian sculptures the frets and sympathetic strings are absent and evidently they seem to be a later development.

### (b) *Guitar[67] type of vīṇā or lute*

At Sanchi this kind of *vīṇā* gets its representation only once, in the reliefs. Even this example is roughly represented. The scene[68] representing 'the return of the perfectly accomplished Buddha to his native town' reveals two musicians with guitar type of *vīṇās*. They have pear-shaped resonators (*pokkharas*) and straight neck.[69] However, the strings of the *vīṇā* cannot be made out.

The guitars have small pegs to regulate the tuning by tightening and looking them. The musicians right hand fingers appear to play on strings while their left hand is adjusting the tuning. The pressure from the fingers on the strings of different levels along the neck shortens, at will, their vibrating length. Here the instruments are in the accompaniment of a royal procession.

At Amarāvati the representation of guitar appears in the sculptures of later period. In one of the sculptures we get an excellent example of guitar being played by a male musician. It has three small pegs evidently to regulate the tuning. The musician's right hand fingers play on strings while his left hand is adjusting the tuning. The guitar has pear-shaped resonator and the straight neck[70] (Pl. 16). The sculpture representing music and dance party also represents a guitar. As it is roughly represented, it is not possible to make out its complete details. However, the pear-shaped resonator (*pokkhara*), the straight neck and two pegs at its terminal can be made out. A female attendant is seen playing it with right hand while her left hand is adjusting the tune[71] (Pl. 17, Fig. III, 3). Here the instrument is being played in the accompaniment of music and dance.

At Nāgārjunakoṇḍa this kind of *vīṇā* gets its depiction twice in the reliefs. The panel[72] portraying 'the transportation of the head-dress to Heaven' reveals a guitar type of *vīṇā* being played upon by a god. It has a pear-shaped resonator and a straight neck: five strings extend across the resonator's (*pokkhara*) flat top which appears to have been of leather (*carma*). The holes seem to be in the top cover of the resonator as seen in the bow-shaped *vīṇā*. The guitar has five small pegs. A god is shown playing upon this guitar amidst the band of musicians. His right hand fingers play on the strings while his left is adjusting the tuning[73] (Fig. IV, 3). Here the instrument appears with a dancing party.

At times, the guitar was also used as a solo instrument. An example of this comes from the panel[74] illustrating the 'night before renunciation' carved on an inscribed frieze slab.[75] A female attendant is shown holding a guitar or lute on her lap and is playing upon it with a plectrum.[76] The guitar has two pegs by means of which tuning was adjusted. The absence of guitar representation at Mathura probably indicates the non-adaptability of the same at that place during that period.

In Gandhāra sculptures the guitar or lute is less represented, as compared to the harp type. In the reliefs, the guitar appears invariably either as an accompaniment to the other instruments in a musical entertainment or as a solo instrument.[77] Generally, lady musicians, nymphs, and celestials occur in the sculptures as guitar-players. The guitar found in the reliefs, is commonly of two-stringed *vīṇā*, and is, invariably, played upon with fingers. Thus the panel[78] illustrating, 'Family drinking-scene of five figures', from Hadda (S. Afghanistan) reveals a lady musician playing upon a guitar or lute in a musical entertainment. It has a pear-shaped resonator and a straight neck. Two strings extend across the resonator's flat top which is probably of leather. The guitar has two small pegs. The musician's right hand fingers play on the strings, while her left is adjusting the tuning[79] (Fig. V, 2, 2a).

In the majority of the cases, the guitar or lute appears as a solo instrument. In one instance,[80] a celestial is represented with a guitar but having a different type of resonator. In this case, the resonator is a curved one and gives an appearance of a scallop instead of the usual pear-shape. Save this difference, the guitar is exactly similar to above one. As the guitar is roughly sculptured, the other details are not clear[81] (Fig. V, 3).

At Ajanta there are many good illustrations of guitar type of *vīṇās* with round or oval boards, probably of wooden and a straight neck (Fig. VI, 3 & Pl. 32). Thus, the mural representing Sutasoma Jātaka[82] reveals a guitar type of *vīṇā* with a round board. The one that is represented in the conception scene[83] is having oval board. The number of strings cannot be made out as they are blurred in the paintings. However, the *vīṇā* with four strings can be seen in the mural revealing School Scene.[84]

### (i) *A triangular Stringed Instrument*

It occurs only once at Ajanta. The scene representing birth of Buddha, illustrates this type of *vīṇā*. It consists of a trigonal frame, presumably, wooden, and the strings are stretched over it[85] (Fig. VI, 4). This has close similarity to *Sambuca* depicted in the Gandhāra sculptures[86] and could as well be its proto type. It is interesting to note that similar instruments of Ajanta example are illustrated in the Sassanian reliefs at Taq-i-Bustan (590-628) A.D.).[87] It is quite likely that this instrument has evolved in North-Western India and travelled to Persia in the 6th cen. A.D. According to Dhavalikar, it survives even today in the elaborate form of *svara-maṇḍala* which has also a roughly trigonal frame but has a number of strings.

### (e) *Vīṇā with an oblong board*

There is a representation of this type at Ajanta (Fig. IV, 5).[88] A dwarf is shown in the paintings playing on it. It consists of an oblong board over which the strings are stretched longitudinally. The number of strings, however, cannot be counted as the painting is not clear. The linear decoration across the board may not be frets. They can only be decorative patterns. The instrument is seen played by right hand by means of what looks like a bow. Similar instrument is also seen in the hands of a *gaṇa* portrayed on a pillar in cave IV at Ajanta.

The representation of this type of instrument is rare in Indian art. It is argued that bow was not known before 8th-9th centuries A.D.[89] The present example is thus unique and can be dated to the close of the 5th century A.D.[90]

Traditionally, bow is said to have been invented by Rāvaṇa and the earliest instrument played with a bow is said to be the *Rāvaṇāstra* which is presumably same as the *Rāvaṇa-hastavīṇa* of the *Bharata-kōśa*.[91] In this connection it is interesting to note that an instrument called *Rāvaṇahatta* is currently in use in Rajastan and it is played by means of a bow. In all probability, this could have been the survival of the Rāvaṇāstra or the *Rāvaṇa-hasta vīṇā*. It is said that in Ceylon a simlar instrument but primitive in shape is being played even to this day with a bow called *vīṇāvati.*[92] The instrument is presently used by wandering musicians.

The Ajanta example, it is quits likely, could have been the precursor of the modern *Sāraṅgi* which is said to have been invented by Amīr Khusru in the 13th century.[93] This could have had its origin in the ancient *Sāraṇga-vīṇā.*

(f) *Single-stringed vīṇā* (*ekatantrī vīṇā*)

This is thrice represented in the Ajanta paintings. It generally consists of a long, tubular rod, probably wooden, to which is fixed, at the lower end, a cup-shaped resonator which may be metallic. It is provided with a single string which is tuned by a key provided in the upper end of the rod. An excellent example of this type is seen hung on the wall in the conception scene in cave XVI (Fig. VI, 1). The rod at times has knobbed ends.

The single-stringed *vīṇā* is the *ekatantrī vīṇā* referred to in literature. It still survives and is known as *ekadaṇḍa* or *ekadaṇḍī* in South India, *ekatārī* in Maharastra[94] and *ekatārā* in Belgal. This is largely used by the Vaisṇavas of Bengal who go about villages singing songs.[95]

In this connection, it is interesting to note that the guitar-shaped *viṇā* is akin to the modern *chikara* and *Rabab* which are still used in the north and north-western India. The latter generally has four strings—three of guts and one of brass—and is usually played with a wooden plectrum and rarely with a bow.[96] It is said that the Indian *Rabab* originated in the Middle East and was played in India first of all, by Tansen of Akbar's court. These instruments are even today very common in Islamic countries.

Dr. Raghavan[97] finds a close similarity in *kachchapī*, the favourite instrument of Sarasvatī with this guitar. But K.V. Ramachandra[98] does not agree with this but finds its survival in Jāva. According to him, the guitar has close similarity to the *citra* from which the modern sitar is derived. But this guitar as interpreted by Coomaraswamy,[99] is more like a *maṇḍolin* which has its survival in Travancore *dunduni*. This *maṇḍolin* resembles very much the

Japanese *biwa* and is much less represented in the reliefs—either replacing the harp or used together with it.

The guitar-type of *viṇā* occurs frequently in the sculptures of later period and can be taken as the true precursor of the modern Indian *viṇā*. It appears in the pāla sculptures[100] and in painting in a cave at Ellora.[101] There are numerous representations of this variety in the mediaeval paintings.

However, its (lute) origin is obscure, but certainly not Sumerian despite two representations.[102] Iran is possibility because many lutes are represented on terracottas or cylinderseals from Susa. The Babylonian documents show two types of lute. One with a very long handle and a small, oval sounding box as on a cylinder seal in the Lourve;[103] the other is shorter with a more voluminous, nearly rectangular sounding-box.[104]

The lute entered Egypt only in the fifteenth century[105] (Pl. 36). It had two types of sounding-box: one oval, the second very elongated. Somewhat *later* it was in favour with the Hittites, who had a third, a more elaborate type, the precursor of the modern guitar with frets on the handle and sharing its peculiar shape of body.

### (*d*) *The Straight-board vīṇā*

Apart from the harp and guitar we get another type of *vīṇā*. It has a straight board. A solitary representation of this type occurs in the Nāgārjunakoṇḍa sculptures. The panel illustrating[106] the nativity and the 'seven steps' illustrates this example. A standing female attendant is seen playing upon it. She is keeping the *vīṇā* aslant on her left shoulder and playing it with her left-hand finger nails. The *vīṇā* has a narrow string board, and the strings are stretched almost half of the entire length of the lute. It is devoid of any pegs[107] (Fig. IV, 4). This lute is unique among the *vīṇās* depicted in the Nāgārjunakoṇḍa sculptures. In a way, it reveals some similarity to the modern '*tamburā*'.[108] In all probability the instrument represented in the relief may well be the early form or the forerunner of the *tamburā*.

### (g) *Lyre* (*Lyra*)[109]

The instrument lyre gets its lithographic delineation only in the Gandhāra reliefs. Nowhere in the entire range of early Indian art, save the Gandhāra specimens, the Lyre is represented. At Gandhāra it is twice represented. In both the instances[110] Orpheus is shown playing with the lyre[111] (Fig. V, 4). The strings of the lyre are usually attached to the sound-box at one end. In a harp, the other ends of the harp string are connected with a neck arising out of the sounding box but in this case, there are two arms with cross-piece connecting them. It is to this cross-piece that the strings have their other attachments.[112] The lyre is seen suspended from right shoulder of Orpheus, presumably, by means of a leather strap. In both the cases, Orpheus is resting the instrument on his left thigh and is playing it with his fingers. But in one case, Orpheus is holding a plectrum in his right hand, while his left hand fingers are also seen playing the strings. As the strings are roughly represented, it is difficult to know the number of the strings of the lyre. In all probability the lyre was introduced to the Gandhāranese somewhere in Hellenistic period.

This instrument of Greek origin, seemed to have been invented by Hermes[113] who stretched four strings across the shell of tortoise. In historical times, the whole tortoise shell was used for the sounding bottom. The curved horns of a goat or piece of wood of similar shape were inserted in the openings for the front legs and jointed near the upper ends by a traverse piece of wood, called the yoke. On the breast plate of the shell was a low bridge. The strings (usually seven) were connected to the yoke across this bridge, all at the same height. The strings were either simply wound round the yoke or fastened to the pegs. The other ends were generally tied in knots to the sounding board.

The instrument was ordinarily played with left hand fingers but when it was required to produce louder sound and longer notes, plectrum was used to pluck the strings by the right hand, the similar process of which the Gandhāra relief offers. Usually in shapes, the plectrum resembled a leaf or a heart or a little hammer.[114] That, which is noticed on the Gandhāra sculptures, resembles a little hammer.[115]

As for the real origin of the lyre one can seek it in Sumerian period. The shape of the Sumerian lyre is reminiscent of its sacred totemic origin, for the body is that of an animal—a bull or a ram—whose head juts out, away from the player.[116] There is even, on occasion, a second animal above the head, as in the Tello relief in the Loure. The instrument is large, be it portable or standing on the ground. As early as the third millennium, the strings number upto eleven. The lyres found in the Royal Tombs at Ur are richly decorated in gold and lapis lazuli[117] (Pl. 39).

From the beginning of the second millennium onwards Babylonia preserves the Sumerian tradition of great lyres standing on the ground as can be seen on the Larsa sherd in the Baghdad Museum and the Ishali plaque in the Oriental Institute, Chicago-but the animal shape has become rare.[118] A Hittite vase from Inandyk in the Ankara Museum is unique in that it shows one of these enormous lyres played by two musicians simultaneously.[119] A third type has an oblique cross-bar as with the silver lyre from Ur with a standing stage[120] (Pl. 40). The type with an animal figure survives until the 6th cent. B.C. On a Xanthos relief Appollo plays a *kithara* adorned with animals.[121]

There is also in Babylonia a smaller, rounded instrument, held either vertically or horizontally. On the basis of a representation in the Louvre, it was played with a small almond-shaped plectrum. From this fact some musicologists infer that the lyre was west semitic in origin, since the small horizontal lyres are first seen in Egypt in the hands of a Syrian nomad depicted in a Beni Hassan tomb of the twelfth dynasty.

In the first millennium, a fourth shape of small lyre, characterized by an oblique crossbar and asymmetric, contorted arms, appears with Hittites and the Assyrians; it may have originated in Prehistoric Palestine. A bronze plaque of Phoenician origin, found in Luristan and now in the Archaeological Museum, Teheran, shows a procession of musicians playing that type of instrument, a form never adopted by the Greeks.

In Egypt the lyre is a foreign instrument. It first appears, as mentioned above, in the hands of a Syrian nomad. It is rectangular and usually played with a plectrum. A few centuries later the lyre was fully adopted. It shows more elaborate forms. Some animal ornaments on the arms recall Mesopotamia. Similarly the bow-shaped holder of a large lyre in the Leiden Museum has its parallel or its model in the great Babylonian lyre of the Ishali clay plaque. The El Amarna paintings show huge instruments. This compares with the Hittite instrument found at Inandyk described above. It is quite possible, given the political and cultural connections between the Hittites and Egypt, that this type was brought from Anatolia to the Nile valley. Perhaps under the influence of the Palestinian type, some Syrian lyres were modified: one of the arms gets shorter and shorter, the cross-bar more and more slanting and the strings more and more unequal. This type is frequently depicted in Phoenicia and Assyria, where it sometimes appears along with the traditional symmetrical type.[122]

The Romans adopted the *kithara*[123] from the Greeks and Etruscans. This instrument was used on many occasions, in funeral music, in sacrificial offerings, in the theatre, for dancing or in concerts. It appears in mythological scenes. Orpheus, the divine singer is shown with lyra and plectrum in the midst of animals listening to him on earthenware vessels found at Trier Cologne.

However, the specimen noticed in the Gandhāra sculptures are evidently of Greek origin betraying unmistakable Hellenistic influence on the Gandhāra rare musical instrument lyre.

### (h) *Sambuca or Sambuke*: *A Triangular-stringed instrument*

*Sambuca*, again, of the Greek origin gets its representation only in the Gandhāra reliefs. A toilet tray, revealing "crowded drinking scene" portrays a woman playing upon a triangular stringed instrument[124] (Fig. V, 5). In this case, it has a pointed end and while playing, this pointed end stands downward. This instrument can be identified as *Sambuca*,[125] a triangular stringed instrument.

The woman, sculptured in the relief is, evidently, a foreigner, wearing a foreign dress and holding a foreign instrument. The style is typical of Hellenistic art and the scene portrayed is the reminiscent of the "wedding of Ariadne and Dionysus", a familiar subject to Greco-Roman art. Thus, the instrument under discussion betrays a foreign impact and, presumably, it was introduced to the Gandhārinese in the Hellenistic period in the 1st Cen. A.D.

However, one can see the proto-type of *sambuca* in the Babylonian civilization. In the Babylonian period, the Sumerian harp was modified by adding a string-holder that pierces at a right angle the lower end of the body. The latter is very large and has sound-holes. The strings are very numerous and were plucked without a plectrum[126] (Pl. 41). In this instrument one can clearly see the forerunner of *sambuca* represented in the Gandhāra sculptures. It has also been argued that the Babylonian examples were adopted by the Assyrians and Persians, from whence they reached China and Japan.[127] It is interesting to note that in Sasanian's time this instrument was known as *chang* and there is a fine representation of this instrument on wall mosaic from Bishapur. A woman musician is shown playing on a *chang* of 3rd cen. A. D.[128] (Pl. 42).

It was under the twenty-fifth dynasty the vertical arched harp becomes more and more concave, until nearly a right angle was formed between the sounding-box and the strings, but the vertical sounding is still at the base[129] (Pl. 42a).

Egypt adopted, from the fifteenth century onwards the vertical angular harp from Babylonia. This becomes a type in great favour perhaps owing to the great stability of tuning allowed by the angular structure. The magnificent specimen is preserved in the Lourve.[130] As already pointed out, the *sambuca*, under discussion was evidently the introduction of the Greeks who in turn looked to its origin in Babylonian specimen.

## REFERENCES

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2. H.S. Harrison, *Guide to the Collections in the Horniman Museum and Library*, London County Council Publication, London, 1936, p. 31.

   In Africa and in parts of Asia musical bows which are of the same form and construction as the shooting-bow, are still in use. In many African musical bows, a gourd is permanently attached to the bow stave. The use of more than one bow attached to a resonator, is a step in the direction of the harp.
3. Marshall & Foucher. *op. cit.*, 35. b1; Coomaraswamy, Parts of *vīṇā*, *JAOS*, Vol. 50, p. 245, 1930.
4. *Ibid.*, a 1 to 4; Sakkapanha Suttanta (*Dīgha Nikāya*, 11 265); *Avadānaśataka*, 17.
5. *Ibid.*, 29. 2; *Divyāvadāna*, 553.
6. *Ibid.*, 35. b1.
7. *Mṛichchhakaṭikā*, Act, *i*, p. 18.
8. Coomaraswamy, A.K., 'Parts of Vīnā,'' *JAOS*, Vol. 30, 1948, p. 246.
9. Marshall & Foucher, *op. cit.*, 29.2; Krishna Murthy, *op. cit.*, (Sanchi), pp. 246.
10. Marshall & Foucher, *op. cit.*, 49; Krishna Murthy, *op. cit.*, (Sanchi), Pl. 21.
11. J. 11, 253; *Amara*, p. 48.
12. Marshall & Foucher, *op. cit.*, 65.a2 & Krishna Murthy, *op. cit.*, (Sanchi), Pl. 23b.
13. *Mṛichchhakaṭikā*, Act IV, p. 102; *Meghadūta*, ii, 25.
14. *DHA*, 1, 125.
15. B.M. Barua, *Barhūt*, (Delhi, 1979), Pl. LXVIII-81.
16. A. Cunningham, *Stūpa of Barhūt*, Varanasi, 1962, PlXXVIII. 4.
17. *Ibid.*, Pl. XXVI. 4.
18. *Barua, Loc. cit.*, Pl. XXXIX-34.
19. *Barua, op. cit.*, Pl. XLII-39.
20. Douglas Barrett, *Sculptures from Amarāvati in the British Museum*, (London, 1954), Pl. XXXV-86.
21. C. Sivaramamurti, *Amarāvati Sculptures in the Madras Govt. Museum*, (Madras, 1956), Pl. XXXVIII-a; Pl. XIII, 3.
22. Barrett, *op. cit.*, Pl. XXXVI. 36.
23. Sivaramamurti, *op. cit.*, Pl. XIII, 7 and Pl. XLIII, 47.
24. *Ibid.*, Pl. XLI, h.
25. Krishna Murthy, *op. cit.*, (Nāgārjunakoṇḍa), cf. Goli, Pl VI-2-i (Ramachandran); Cf. Amarāvati, *op. cit.*, Barrett XXVI; XXXVII; also Cf. Hackin, *op. cit.*, Pl. III; Cf. Burgess, *op. cit.*, Pl. IX.
26. Coomaraswamy, 'Parts of Vīnā', *JAOS*, Vol. 50, 1930, p. 250.

27. Coomaraswamy, *JAOS*, Vol. 50, p. 250.
28. Krishna Murthy. *op. cit.*, (Nāgārjunakoṇḍa), Pl. XII, 2; fig. XX, 1.
29. Krishna Murthy, *op. cit.*, (Nāgārjunakoṇḍa), p.
30. *Ibid.*, (Gandhāra Sculptures), p. 81.
31. *Ibid.*, p. 81.
32. Krishna Murthy, *op. cit.*, (Gandhāra Sculptures), p. 82.
33. Vincent A. Smith, *The Jain Stūpa and other Antiquities of Mathura*. Allahabad, 1901), Pl. XVIII.
34. *Ibid.*, Pl. XXXIII, Fig. 2.
35. A K. Coomaraswamy, "Parts of *Vīṇā*", *JAOS*, Vol. 30, 1948, p. 246.
36. M.K. Dhavalikar, *Ajanta-A Cultural Study*, Poona, 1973, fig. XXIX, 2.
37. *Ibid.*, Pl. XVI.
38. *Amara*, p. 48,
39. Altekar, *Catalogue of Gupta Coins in the Bayana Hoard*, Pl. VI, 3-8.
40. D.H. Gordon, *Prehistoric Background of Indian Culture*. (Bombay, 1958), p. 106, fig. 14, 2.
41. Sivaramamurti, *op. cit.*, pp. 114-115.
42. Coomaraswamy, *JAOS*, Vol. 51, p. 47; Also see E.A. Wallis, *A Guide to the Egyptian Collections in the British Museum* (1909), p. 87, p. IX.
43. *World Archaeology*, Vol. 12, No. 3, Pl. 44.
44. *Ibid.*, p. 292.
45. *Ibid.*, Pl. 44.
46. *Ibid.*, Pl. 46.
47. *Ibid.*, Pl. 52.
48. *Ibid.*, Pl. 53.
49. *Ibid.*, Pl. 42.
50. *Ibid.*, Pl. 56.
51. *Ibid.*, Pl. 57.
52. *Ibid.*, Pl. 58.
53. Barua, *Barhūt*, Book III, P. XXXIX-3L: A terracotta figure of Suṇga period also depicts a seven-stringed harp.
54. Krishna Murthy, *op. cit.*, Ph. 21, 23b, 24b.
55. Swamipragnananda, 'Saptatantrīvīṇā in the Sculptures of the Buddhist Cave at Ellora,' Pitalkora", *Roopalekha*, Pl. XXIII, 1961, p. 34 ff.
56. Coomaraswamy, *JAOS*. Vol. 50, p. 246.
57. Sivaramamurti, *op. cit.*, Pl. XIII. fig. 3 and 7.
58. Krishna Murthy, *op. cit.*, figs. XII, 1, 2.
59. Ramachandran, *op. cit.*, (Goli Sculptures), Pl. VI-2, i.
60. Vogel, *La Sculpture de Mathura*, Pl. XLVI, b.
61. Krishna Murthy, *op. cit.*, fig. XX, 1.
62. A. S. Altekar, *Catalogue of the Gupta Gold Coins in the Banyan Hoard*, Nos. 3-8, Pl. VI. Also *JNSI*, XXIII, 1961, p. 268.

63. Sharma, Y.D., Past Patterns in living as unfolded by excavations at Rupar, *Lalit Kala*, Nos. 1-2, fig. 24.
64. This early form of *vīṇā* passed through various alterations and gradually developed into a long hallow semi-cylindrical body with a number of keys on its sides for tying the strings to the lower and upper and respectively was attached a square sound board and a hallow gourd. In the further development the square sound board was replaced by a round gourd (Munshi. *The Saga of an Indian* Sculpture, p. 8).
65. Jean Kins, Musical Instruments from Central Asia, *Leader Daily*, Patna, Aug. 14, 1960.
66. P. Sambamoorthy, *Catalogue of Musical Instruments in the Madras Govt. Museum*, p. 15, fig. 1.
67. This instrument, evidently copied from the Indian instrument, is known as *guitar* in Europe, the Italian name of it is *chittara*, while the Spanish designation is *guitarra* and the French *gaitare*. There can be no doubt that the whole of these names are derived from the same root or word.
68. Marshall & Foucher, *op. cit.*, 50. a1; Krishna-Murthy, *op. cit.*, (Sanchi), p. 118.
69. Krishna Murthy, *op. cit.*, Pl. 6a.
70. Sivaramamurti, *op. cit.*, Pl. XIII, 11.
71. Barrett, *op. cit.*, Pl. XIII, 14.
72. *Ibid.*, p. 182, fig. XII, 3, 3a; Cf. mandolin in Coomaraswamy, *op. cit.*, 50, p. 251 also Cf. Hackin, *op. cit.*, Pl. III, *vide* Marshall, *op. cit.*, Pl. 31, fig. 92. Also see Herald Ingholt, *op. cit.*, 3.
73. Krishna Murthy, *op. cit.*, p. 182.
74. *Ibid.*, fig. XII, 3, 3a.
75. Krishna Murthy, *op. cit.*, p. 182; Cf. J. Burgess, *The Buddhist Stūpas of Amarāvati and Jaggayyapeta*, ASI, Vol. 1, (1887), p. 35, fig. 7 and also see plate 6 of *JAOS*, 50.
76. Reference to plectrums (*koṇas*) as a part of *vīṇā* occur in *Rāmāyaṇa*, 11, 71, 26 and 81; *Milindapanha* (Trincker), 53; *Saṁyukta Nikāya*, IV, 197, *Harṣacarita*, 84 *etc.*
77. Krishna Murthy, *op. cit.*, (Gandhāra Sculptures), p. 83.
78. Marshall, *op. cit.*, Pl. 31, fig. 49; Cf. Sivaramamurti, *op. cit.*, pp. 569 to 571; Pl. 3, 30.
79. Krishna Murthy, *op. cit.*, (Gandhāra Sculptures), fig. XX, 2, 2a.
80. John Marshall, *op. cit.*, Pl. 62, fig. 91.
81. Krishna Murthy, *op. cit.*, fig. XX, 3.
82. Dhavalikar, *op. cit.*, p. 117, Pl. XVII.
83. *Ibid.*, p. 117, Pl. XVI.
84. *Ibid.*, p. 117, Pl. XVI.

85. *Ibid.*, fig. XXIX, 4.
86. A strikingly similar instrument is depicted on a stone toilet tray from Taxila (Sirkap).
87. H.G. Farmer, "The Instruments of Music on the Taq-i-Bustan Bas Reliefs", *JRAS*, 1938, pp. 398, ff. Pl. I, 1-2.
88. Dhavalikar, *op. cit.*, fig. XXIX, 5.
89. H.G. Farmer, "The Instruments of Music on the Taq-i-Bustan Bas Reliefs", *JRAS*, 1938, pp. 398, ff.
90. Dhavalikar, *op. cit.*, p. 118.
91. Day, *op. cit.*, Vol. 1, p. 102.
92. *Ibid.*, pp. 102-103; Also see Ram Avatar Vir, *Musical instruments of India, History and Development*, (New Delhi), p. 84.
93. Ram Avatar Vir, *op. cit.*, p. 84 and Mukharji, *op. cit.*, p. 83.
94. Dhavalikar, *op. cit.*, Pls. XVI, XVII and XXIX, 1.
95. P. Sambamoorthy, *Catalogue of Musical Instruments in the Madras Museum*, Madras, p. 10; Also see T.N. Mukhjerji. *Art Manufacturers of India* (New Delhi, 1974), p. 87; Ram Avatar Vir, *Musical Instruments of India, History and Development* (New Delhi), p. 57. *Ekatāra* is the oldest musical instrument among the stringed instruments. Before the invention of metal, it was played by tying the guts in place of strings.
96. C.R. Day, *Music and Musical Instruments of Southern India and Deccan* (London, 1891), Pt. II, pp. 127-128, Pl. VI. *Chikara* is a tribal instrument of Rajasthan, Madhya Pradesh and Uttar Pradesh (Ram Avatar Vir, *op. cit.*, p. 85.
97. Sivaramamurti, *op. cit.*, p. 145.
98. *Ibid.*, p. 145.
99. Coomaraswamy, *op. cit.*, Vol. 50, p. 251.
100. N.K. Bhattasali, *Iconography of Buddhist and Brahmanical Sculptures in the Deccan Museum*, (Decca, 1929). pp. 181, ff. Pl. LXII. This very classical stringed instrument is popularly known as the *kachua sitār*. It owes its name to the shape of the gourd which is flat like the back of the *kachchhapa* (tortoise).
101. *JAOS*, Vol. 50, p. 244.
102. World Archaeology, Vol. 12, No. 3, p. 295.
103. *Ibid.*, Plate 63.
104. *Ibid.*, Plate 64.
105. *Ibid.*, Plate 52. Egyptian harp and lute from New Kingdom.
106. Krishna Murthy, *op. cit.*, p. 183.
107. *Ibid.*, fig. XII. 4.
108. The instrument (modern *tamburā*) is one of the most popular and classical instruments played all over India. This instrument was brought from middle east countries in Mohammadan period and was called *tambur* at that time.

This *tamburi* as popularly known in Madras has been used by the Egyptians and Abyssinians from olden times (Mukharji, *op. cit.*, p. 86.

109. Lyra is a Greek word for Lyre.
110. Herald Inghot, *Gandhāran Art in Pakistan*, (New York, 1967), xviii, 1 and xviii, 2. These sculptures are presently preserved in Byzantine Museum, Athens and National Museum. Bairat; compare also R.K. Cook, *Greek Painted Pottery*, London, 1960, fig. 41. 46a, 53 (Lyres on Amphora vessels dating from 490 B.C. to 350 B.C.
111. K. Krishna Murthy, *The Gandhāra Sculptures-A Cultural Survey*, (Delhi, 1977), fig. XX, 4.
112. Compare 19th century lyres (kissar type) of East Africa (Uganda) lyre-guitars from Neples and Ratisbon in which strings pass over a fret board. *Vide* wall case 66 Horniman Museum, London.
113. Undoubtedly the oldest description of the Greek tortoise-shell lyre or lyra is found in one of the Homeric Hymns dating from not much later than the seventh century B.C. According to this story' Hermes scooped out the marrow of a mountain tortoise with a scoop of grey iron. He cuts stalks of reed to measure and fixed them, fastening their ends across the back and through the shell of the tortoise and then stretched oxhide all over it. Hermes also put in the horns and fixed a cross-piece upon tur of them and stretched seven strings of sheep gut which he then sounded with a plectrum (Homeric Hymn to Hermes, 31-53). There is an excellent article by Helen Roberts entitled "Reconstructing the Greek tortoise-shell lyre" in *World Archaeology*. Vol. 12, No. 3, pp. 303-312 which may be seen for more details about Greek lyre.
114. Seyffert, Oskar, *A Dictionary of Classical Antiquities*, (London, 1957), p. 367 & Cf. fig. 3.
115. Herald Ingholt, *op. cit.*, xviii. 2. Compare also lyre from wood-cut nos. 217, 1, 2 and 218 illustrated in J.G. Wilkinson, *Manners and Customs of the Ancient Egyptians*, London, Vol. II, p. 291.
116. *World Archaelogy*, Vol. 12, No. 3. Plate 34.
117. *Ibid.*, Vol. 12, No. 3, p. 294: Pl. 59.
118. *Ibid.*, p. 294.
119. Marcelle Duchesne-Guillemin, "Music in Ancient Mesopotamia and Egypt," *World Archaeology*, Vol. 12, No. 3, p. 294.
120. *Ibid.*, Pl. 60.
121. *Ibid.*, p. 294.
122. *Ibid.*, Vol. 12, No. 3, Pl. 62.
123. The words '*kithara*' or '*cithara*' and 'lyra' were used synonymously (Wille, G. *Musica Romana*, (Amsterdam, 1967), p. 212.
124. Krishna Murthy, *op. cit.*, (Gandhāra) p. 85, fig. XX. 5.
125. Seyffert, *op. cit.*, p. 566. Compare *sambuca* from the tombs of Thebe (*vide* wood-cut nos. 210, 211 and 215. 4 illustrated in Wilkinson, *op. cit.*, pp. 280

and 287). It was said to be made of strings of unequal length and thickness, answering to the appearance of one alluded to at Herculaneum. There is another triangular form at Herculaneum, with ten strings, which is held over the shoulder while played with the two hands.

126. *World Archaeology*, Vol. 12, No. 3, Pl. 51.
127. *Ibid.*, p. 292.
128. Khanbaba Bayani "Persian Music in Sassanian Times", *Historical, Studies of Iraq*, May 1975, No. 3, pp. 59-70, Pl. 2.
129. *World Archaeology*, Vol. 12, No. 3, Pl. 54.
130. *Ibid.*, Plate 55.

## 3

# Percussion Instruments Anaddha Membranophones

The percussion instruments[1] include a large variety of drums varying in their sound and model. They range from the high sounding *paṭaha* to the sweet sounding tabors. The *mṛdaṅga*, the classical drum of India, literally means "made of clay", presumably, therefore, its body should have been originally of clay.[2] Even to this day, we find large earthen pots are being used as such by the Indian drummers. The *mṛdaṅga* is considered to be fairly ancient among the drum varieties. It is said to have been devised by Brahmā to act an accompaniment to the dance of Śiva in the honour of his triumph over Tripurāsura and Gaṇēśa, the son of Śiva is said to have been the first to play upon it.[3] In the present days the *mṛdaṅga* has become an indispensable accompaniment to both vocal and instrumental music. The *mṛdaṅga* solos are indeed a real treat. They require consistent practice to attain proficiency in playing upon it.

### *Development of Drum*

Each of the early civilization furnishes evidence of the development of the drum. A vase from Adab (3000 B.C.) and other objects found in Mesopotamia at this period illustrate shallow or frame drum and small cylindrical drum being played in horizontal and vertical positions. A drum (nailed head) as tall as the two players is depicted on the Sumerian vase of the same period. Early Egyptian artefacts show a drum with the skins stretched by a network of thongs and provide evidence of the use of clappers and concussion sticks. An ancient tomb of the Egyptian kings in the catacombs of Eleithya, near Thebes depicts a group performing women, one of whom holds a curved concussion stick in each hand.

The origin of the hour glass drum is obscure. A waisted drum narrower in the middle than at the ends and little longer than it is wide is seen on the Indian sculptures (2nd cent. B.C.). The instrument is suspended from the apes' shouldering and is being played with two sticks by the animal. The Indian clapper drum (*damaru*), a small drum which is similar in shape to the hourglass, has one or two cords fixed in such manner that they strike the skins when the instrument is moved to and fro. Such an hour-glass drum is still used in Nigeria.

The early Indian sculptures and murals represent many drums of which a majority are concert drums.[4] However, the classification of the drums is made on the basis of their position in which they are held for playing.

### (i) *Tabular Drums*

#### (a) *Aṅkya mṛdaṅga*

At Sanchi this type of *mṛdaṅga* is depicted more than once. The scene illustrating Māra's army, reveals a *mṛdaṅga* on the lap of a demon[5] (Pl. 2; Fig. I, 2). Since the representation is rough, the other details of the *mṛdaṅga* are not clear. However, the position in which it is held, the *mṛdaṅga* can be identified as *aṅkya* type of drum.[6] Again, in the scene representing "six Deva Lokas" *aṅkya mṛdaṅga* is depicted four times[7] (Pl. 3). In one case, a female attendant is shown keeping a *mṛdaṅga* on her lap and playing it with her left hand. In the remaining three cases, female attendants are shown keeping the *mṛdaṅga* on their laps. They are also having an *ūrdhva mṛdaṅga* together and playing it with their left hand. As the *aṅkya mṛdaṅgas* are roughly represented, the other details of them cannot be made out.

#### *Aṅkya ūrdhva mṛdaṅgas*

At Barhūt, invariably the *aṅkya mṛdaṅga* and *ūrdhva mṛdaṅga* get their depiction together and are seen being played by a single person. In the panel[8] illustrating 'employment of the nymphs by Mara to tempt the Buddha" a lady musician is shown playing *aṅkya* and *ūrdhvaka mṛdaṅgas*. She is seen playing the *aṅkya mṛdaṅga* with her left hand while the right hand is playing the *ūrdhva mṛdaṅga*. The braces of the *aṅkya mṛdaṅga* probably made of twine or leather can be made out clearly. Apparently they are provided for tuning the instrument. A lady musician left to her is seen playing on what appears to be an *aṅkya mṛdaṅga*. from the position it is held. Here she is playing with her right hand. The *koṇa* held by her can also be made out (Pl. 10). Again, the panel[9] revealing "Vijayanta palace and Sudharma Hall of the gods of thirty nine" portrays a lady musician playing *ūrdhvamṛdaṅga* while *aṅkya mṛdaṅga* is seen kept on her lap. The *ūrdhva mṛdaṅga* kept vertically before her is seen being played by both of her hands. In fact, she is resting her left hand on the *aṅkya mṛdaṅga* for playing the *ūrdhva mṛdaṅga*. The braces of the *ūrdhva mṛdaṅga* evidently tied for tuning the instrument are clearly visible. As for the *aṅkya mṛdaṅga*, it is just seen kept on her lap as both of her hands are engaged in playing the *ūrdhva mṛdaṅga* (Pl. 11).

In Amarāvati sculptures *aṅkya mṛdaṅga* is represented more than once. The panel[10] representing "Prince Siddhārtha in his harem" illustrates *aṅkya mṛdaṅga*. A lady musician is shown keeping the *mṛdaṅga* on her lap. The *aṅkya mṛdaṅga* is partially seen as it is covered by her hands. However, one face of the *aṅkya mṛdaṅga* can easily be made out (Pl. 18; Fig. III, 4). The best example of *aṅkya mṛdaṅga* is revealed in the sculpture[11] portraying Māndhātu Jātaka. A female attendant is playing the *aṅkya mṛdaṅga* with her hands. The braces tied in criss-cross fashion to the *aṅkya mṛdaṅga* are clearly visible. What is interesting is that another female attendant sitting near her is also playing *ūrdhva mṛdaṅga* with her hands. The braces of this *mṛdaṅga* is also clearly seen. Evidently both the *mṛdaṅgas* are being played in perfect rhythm in tune to other musical instruments engaged in the music party (Pl. 15).

At Gandhāra also, the representation of *aṅkya mṛdaṅga* in the sculptures are available. The panel[12] illustrating the 'Life in the

Palace,' reveals two *mṛdaṅgas* being played upon simultaneously by a lady attendant. Of them, one is kept on her lap horizontally. Her left hand fingers are shown beating the *mṛdaṅga* kept on her lap. From the position in which it is held (*i.e.*, keeping it on her lap), the *mṛdaṅga* (Fig. V, 6), can be identified as *aṅkya mṛdaṅga* while the other represents *ūrdhvaka mṛdaṅga*.

Generally, these two types are seen in the Gandhāra reliefs together played upon by the drummers. Thus, another example comes from the panel revealing the same scene as above. In this case, also, the *aṅkya mṛdaṅga* is being played by the left hand of the lady drummer.

At Nāgārjunakoṇda, the panel[13] illustrating 'the last night before renunciation' reveals a *mṛdaṅga* being played upon by a female attendant. She has placed it on her lap and is playing upon it with her hands. Since the representation is rough, the outer details of the *mṛdaṅga* are not clear. However, from the position in which it is held, the *mṛdaṅga* can be identified as the *aṅkya* type of *mṛdaṅga*.

In Ajanta paintings *aṅkya mṛdaṅga* is depicted more than once. The best example of this is illustrated in the mural revealing Mahājanaka Jātaka (Pls. 33 & 34). A small drum (*mardala*) is held by a female drummer in her lap Fig. VI, 6). Its shell is presumably hallowed out of a solid block of wood having resonant qualities. The braces may be of either twine or leather, and are stretched from end to end. They are unmistakably provided for tuning the instrument. The *Amarakośa*[14] which enumerates the different varieties of drums mentions the *aṅkya* types which was held in the lap. The Ajanta specimen under reference can, therefore, be classed as the *aṅkya* type of drum.

### (b) *Aliṅgya mṛdaṅga*

At Sanchi the scene[15] representing "the Nāgamuchalinda episode" depicts a *mṛdaṅga* on the lap of a female attendant. She is playing the *mṛdaṅga* with her left hand, while her right hand is kept over the *mṛdaṅga*. The *mṛdaṅga* may be identified as *āliṅgya mṛdaṅga.*[16]

The representation of *āliṅgya mṛdaṅga* in the Amarāvati sculptures is quite realistic. Thus in one panel[17] there is a fine example of lady attendant embracing both *aṅkya mṛdaṅga* and *ūrdhva mṛdaṅga.* As she is embracing both the *mṛdaṅgas*, this serves as a good example of *āliṅgya mṛdaṅga* type described in *Amarakośa*. The braces of the *mṛdaṅgas* are clearly visible (*Sivaramamurti*, *XIII*, *9*).

At Gandhāra one of the panels revealing the Renunciation illustrates[18] two lady attendants embracing *mṛdaṅgas* can be identified as

*Āliṅgya mṛdaṅgas*

The *āliṅgya* variety of drum is realistically represented in the Ajanta painting portraying Mahājanaka Jātaka.[19] It approximates in shape an hour-glass. Of the two faces, one has the circular fixture of blacks paste, while the other is without any mark, as is the case today (Fig. VI, 1). Another *āliṅgya* drum, smaller in size is shown being played by a dwarf[20] (Fig. VI, 11) by means of a stick (*koṇa*) with a curved end.

(c) *Ūrdhva mṛdaṅga*

At Sanchi this type of *mṛdaṅga* is depicted more than once. The scene[21] depicting "Mara's army" reveals a *mṛdaṅga* kept on the ground in vertical (Pl. 2; Fig. I, 2). Apparently, it had a single mouth on the top side. A demon of the Māra's army is shown playing upon it with his left hand. The vertical braces, probably of leather are seen passing through the holes in the leathern face, but no barrel-shaped blocks of wood seem to have been inserted in the braces for tightening as is done today. The braces are provided for tuning the instruments. As the *mṛdaṅga* is kept in an upright position, it may be identified as of the *ūrdhvaka* variety of the *Amarakośa*. Again, the scene[22] representing "six Deva Lokas", illustrates *ūrdhva mṛdaṅga* four times (Pl. 3). In all cases, a female musician is shown playing on it with her left hand. The vertical and horizontal braces of them are clearly seen. Evidently, the vertical braces of leather are made to pass through the holes of the leathern face. However, no barrel-shaped blocks of wood are seen inserted in the braces for tightening.

An example of *ūrdhva mṛdaṅga* at Amarāvati is to be seen in the panel[23] portraying Māyā Devī's dream". A female musician is seen playing the *ūrdhva mṛdaṅga* with her left hand. The braces tied to the *mṛdaṅga* for providing perfect tuning can easily be made out (Pl. 19; Fig. III, 5 & 6).

The sculpture, depicting[24] "sleep of the women" at Gandhāra reveals a *ūrdhvaka* type of *mṛdaṅga*. Apparently, it had a single mouth on top side. A female attendant is shown placing her head on it. The horizontal and vertical bands, probably of leather are clearly visible.

Two more examples of *ūrdhvaka* type of *mṛdaṅga* are available in the reliefs. The panels[25] reveal 'Life in the Palace'. In both the cases, the *ūrdhvaka mṛdaṅga* occurs along with *aṅkya mṛdaṅga*. The lady attendants are shown playing both the *mṛdaṅgas* simultaneously, In order to beat the *ūrdhvaka mṛdaṅga*, the lady attendant has raised one of her hands high. However, *koṇas* are not used in any of these cases. The horizontal and vertical bands are distinctly seen.

At Nāgārjunakoṇḍa, the depiction of *ūrdhvaka* type of *mṛdaṅga* is profuse. The sculpture, depicting 'night before the renunciation' carved on the inscribed frieze slab[26] reveals a *ūrdhva mṛdaṅga* (Fig. IV, 5; Pl. 27). A female attendant is shown placing both her hands on it.

In some instances, these *ūrdhvaka* type of *mṛdaṅgas* are seen fastened to the stomach of the player by means of a strap or *udarabandha*. They are invariably seen being played upon by drum-sticks. Thus the panel[27] representing 'a decorated Āndhra Stūpi' reveals a *ūrdhva mṛdaṅga*. It is seen fastened over the stomach of a god or a celestial being by means of an *udarabandha*. He has raised his hands in which the *koṇas* (plectrums) are held and is shown in the act of beating the *mṛdaṅga*.[28] (Fig. IV, 6). Gods are shown twice, playing upon the *ūrdhva mṛdaṅga* of this type.

Again, a similar example is depicted four times in the panel[29] illustrating "the transportation of the head-dress to heaven". The celestials here are seen holding the drum-sticks in their upraised hands in the act of beating the drum. The way in which their hands are upraised would suggest the pose of beating the drum in a vigorous manner. In that case, the *koṇāghātas*[30] would have produced a considerable sound as the drum was beaten by two *koṇas*.

In the painting revealing Mahā Janaka Jātaka,[31] in cave no. 1 are shown two drums of *ūrdhvaka* variety (Fig. VI, 8). The drums are being played by means of sticks (*koṇas*). It resembles the modern *tabala* and *daggā*. The parallel examples of this occur in Sanchi, Barhūt, Amarāvati, Nāgārjunakoṇḍa and Mathura.

Thus in early Indian art the *ūrdhva mṛdaṅgas* occur at Barhūt,[32] Sanchi,[33] Amarāvati,[34] Nāgārjunakoṇḍa,[35] Mathura,[36] Gandhāra,[37] and in the paintings of Ajanta.[38]

### (d) *Muraja*

Another variety of drum smaller than those described above is the refined sweet sounding *muraja* referred to by Kālidāsa. At Sanchi, it is represented realistically. The scene[39] illustrating "Royal visit" depicts a male musician playing upon it. The *mṛdaṅga* is made to dangle from his left shoulder by means of a leather strap or rope. The braces tied to the *mṛdaṅga* can also be made out easily. The *mṛdaṅga* possibly produced a more refined sweet sound than that produced by *koṇāghāta.* However, the best example of *muraja* can be seen in the panel depicting "Ashoka's visit to Bodhi tree." It is made to dangle from the left shoulder of the musician by means of strap[40] (Pl. 4). The braces of the instruments are quite clear.

At Barhūt the drum that gets representation more than once is the refined sweet sounding *muraja*. The scene[41] illustrating "Great renunciation" represents a male musician playing a *muraja*. It is made to dangle from his shoulders by means of a strap. The *muraja* is having braces tied horizontally on its exterior. The musician has raised his left hand high up in the act of beating the drum while the left hand is touching the other face of the drum.

Another example of *muraja* we get clearly represented in the scene[42] depicting "capture of an elephant by the monkeys". In this interesting scene one of the monkeys is shown with *muraja* type of drum. The *muraja* is made to sling from the neck of the monkey by means of a strap. The braces of the *muraja* can also be made out clearly. Although due to the weight of the *muraja*, the monkey is shown slightly bent (Pl. 12). However, a clearer picture of *muraja* can be seen in another scene[43] representing "the procession of the elephant". A monkey is shown dangling a *muraja* from its right shoulder by means of a strap. That the *muraja* is being played by a plectrum can be made out easily from the left hand of the monkey. A straight *koṇa* with bulbous terminal is clearly visible (Pl. 12a; Fig. II, 3).

A fine example of *muraja* gets its depiction at Amaravati on a Rail pillar.[44] A dwarf is shown playing a *muraja*. It is made to dangle from his left shoulder by means of a strap. His right hand is raised so high to suggest his act of beating the *muraja* with *koṇa* vigorously. His left hand fingers are seen softly playing on the other face of the *muraja*. (Pl. 20; Fig. III, 10). The depiction of the whole act is quite realistic. Another example of *muraja* we get on a Rail pillar. The scene[45] depicting the music party reveals a lady attendant playing on a *muraja*. She has placed the *muraja* on her left lap and playing it with her right hand artistically (Pl. 17; Fig. III, 7).

*Muraja* is also represented at Gandhāra. The panel[46] depicting "Nāgarāja with musicians and attendants" reveals a Nāgarāja playing upon a *muraja* with his hands. The *muraja* is made to sling by means of a strap, probably made of leather (Fig V, 7).

In the Nāgārjunakoṇda sculptures the representation of *muraja* is realistic.

An *āyaka* cornice stone from *stūpa* no. 6 represents a dwarf playing upon a *muraja* with hands.[47] The drum is made to dangle from his left shoulder by means of a strap. The *muraja* has horizontal and vertical bands or straps on its exterior (Fig. IV. 7).

This is represented at Ajanta realistically. A fine example of *muraja* can be seen portrayed in the painting revealing Simhala Avadāna in cave XVII. It is a small, two-faced drum with bulbous body. It is made to sling from the shoulder of the musician by means of a strap probably of leather[48] (Fig. VI, 10). Thus *muraja* variety as pointed out earlier is a refined variety of drums producing sweet sound.

### (e) *Mardala*

This type of drum occurs more than once in early Indian sculptures. At Sanchi in the scene depicting "the Great Miracle of Sambodhi" and scene of the feast celebrated by the Mallas of kusinagara,[49] a *mardala* is made to cling from the shoulder by means of a strap. The musician is shown playing upon it with his both hands. The braces of the *mardala* are clearly seen (Pl. 5, Fig.I, 3, Pl. 6, Fig. I, 4). This drum which is typologically mid way between the more refined *muraja* and noisy *paṭaha*, may be identified as *mardala*. According to Sivaramamurti, the *mardala* is very much like the modern South Indian *tavil*. An excellent example of *mardala* occurs in the scene[50] representing the "Great prodigy at Sravasti." This tabular drum is having braces of leather passing through the holes in the leathern face. However, no wooden blocks are seen inserted in the braces for tightening (Pl. 7). The drum under reference very much resembles the modern *dholak*.[51]

At Barhutan example of *mardala* can be made out from the scene[52] of "tickling the nose of a giant by the monkeys."

The *mardala* is shown slinging from the shoulders of a monkey by means of a strap. The monkey is seen playing the drum with curved drumstick on one face and on the other with fingers. The left hand which holds the *koṇa* is raised so high as to suggest vigorous beating (Pl. 13, Fig. II, 2).

The representation of *mardala* at Amarāvati is quite alluring. The best example of a *mardala* occurs in one of the bas-reliefs.[53] A male musician is shown playing a *mardala*. It is suspended by means of a strap probably of leather from his left shoulder. He is playing the *mardala* with the curved *koṇa*. He has raised his right hand so high to effect a vigorous beating on the face of the *mardala*. The braces tied to the *mardala* for tuning is also quite visible. (*Sivaramamurti* XIII, 2). Again, a *mardala* is represented in a scene[54] representing "Suddhodhana's procession from city." A male musician playing on a *mardala* is shown leading the procession. The *mardala* is made to dangle from his shoulders and he is playing by both of his hands (Pl. 21; Fig. III, 8).

At Gandhāra the "Star-Riser Relief"[55] depicts a *mardala* being played by a drummer with his fingers. The *mardala* is kept slinging from his left shoulder by means of a strap. It is being played in the accompaniment of dancing. In another panel[56] illustrating "Musicians and dancers" are to be seen as many as three *mardala* being played upon by male drummers.

At Nāgārjunakoṇḍa the panel[57] illustrating a 'decorated Āndhra *Stūpa*' represents thrice being played upon by celestial beings Fig. IV; 8). The drums are shown, in all the three cases, hung from left shoulders with straps. The celestial beings are shown playing upon the drums with curved drumsticks on one face and on the other with fingers. One of them has raised the hand, which holds the *koṇa* so high as to suggest vigorous beating.

A few examples of *mardala* variety also occur at Ajanta. A *mardala* is illustrated in the painting revealing Simhala-avadāna, in cave XVII. This is made to dangle from the neck of the musician by means of a strap probably leather. It is tied to the *uttarīya* wound round the chest of the drummer.[58] (Fig. VI, 9).

One noteworthy feature of some of the concert drums such as *muraja* and *mardala* is that they often required a kind of rice paste to be applied to both the leather surfaces to sweeten their sound.[59] It is this black paste which gives fine tone to the *mṛdaṅga* lest it sounds like a *dholak*. The other face is applied with rice paste at the beginning. The tone, though sweet after the application of the paste, becomes coarse after diminution of that paste.

The concert drums described above were probably made of hollow block of wood with its faces covered with leather, possibly calf leather, as is the case today.

### (*ii*) *Kettle Drums*

### (a) *Dundubhi*

Apart from the above drums there are others which are large and remind those used in temples and wars. In early Indian reliefs they are represented in association with other musical instruments in a procession. At Sanchi the scene[60] representing the "Transport of Relics" illustrates three sub-spherical shaped drums which may represent *dundubhis*. Two of these dundubhis have round base while the third one has flat-base. The one with flat-base has cylindrical shape. However, all the dundubhis have braces for tighten ing the instrument (Pl. 8). Those *dundubhis*[61] resemble *nagāra* or *daṅkā* which is used today in temples and festivals. The *dundubhis* represented in the relief are made to dangle by means of a strap from the right shoulder of the musicians. The musicians are shown playing them with curved *koṇas*. The *koṇā-ghātas* on them should have produced considerable sound. Such *nagāras* or *dundubhis* are seen invariably played with *koṇas*.

Another example of sub-spherical shaped *nagāra* gets its portrayal in the scene[62] of "the feast celebrated by the Mallas of Kusinagara". It is seen played upon by a foreigner, presumably Greek. He is playing it with both of his hands. The *koṇas* in the hands can be made out easily (Pl. 6; Fig. I, 5, 8 & 10).

It is interesting to note that the low kettle drums resembling the Sanchi specimens were available in the remote past outside the country. A low kettle drum, dating from the first half of the fourth millennium, is perhaps depicted on a seal impression found at Chogha Mish in Elam[63] (Fig. VII). The footed-type war drum also was used by the Babylonians.[64] (Pl. 43). A portable drum carried with a leather thong was known to the Hittites.[65] (Fig. X).

At Gandhāra the *dundubhis* are represented in the sculptures in association with other musical instruments in processions. Thus, the panel,[66] revealing "conversion of Ugrasena" and "Birth of Siddhārtha and seven steps", illustrate a *dundubhi*. In both the cases, it is made to sling from the left shoulder of the drummer by means of a strap. In two other panels,[67] revealing "Base ornamented garland and Erotes" and "Stair-Riser Relief", is shown a drum sub-spherical in shape (Fig. V, 8). The drummer in this case, has held the drum in between his thighs and is playing upon it with both of his hands. It resembles the *nagāra* or *daṅkā* which is used today in temples and festivals.

At Nāgārjunakoṇḍa the panel[68] illustrating "the transportation of the head dress to heaven' reveals a *dundubhi*. It is shown being played upon by a celestial being. He has raised his right hand in which he is holding a curved drum-stick so high as to suggest delivery of a very vigorous blow on its striking side for producing a very loud sound. He is playing the drum on the other side with his left hand fingers in the similar way as the *mardala* is generally played. The drum in this case is made to dangle from the shoulder (Fig. IV, 9).

There are only a few representations of this variety in the Ajanta Paintings. The drum[69] (Fig. VI, 12) depicted in the *Sutasoma Jātaka* in cave XVII has a huge tubular body over which braces are stretched. It is undoubtedly the *dundubhi* or kettledrum used in war.[70]

### (iii) *Frame Drums*

#### (a) *Paṭaha*[71] (*Ḍaph*)

The Sanchi reliefs depict this type of musical instrument at several places. Thus the scene[72] illustrating "the Great Miracle of Sambodhi" reveals a disc-shaped frame-drum. It is suspended by means of a strap from the right shoulder of the musician. He is playing the instrument with curved *koṇas*. The instrument is a single sided drum one side of which is covered with parchment. The instrument could be none-else than *paṭaha* (Pl. 5: Fig. I, 9), which is exactly similar to the modern *ḍaph*, *ḍappu*, or *tappeṭa* of Āndhra Pradesh and *tappiḍi* of Karnātaka state or *ḍaph* used in the Maharaṣtra State. Even in the manner in which it is shown being played upon in the relief is characteristic of the present day drummer of this type.

Precisely, similar *paṭaha* is met with in the scene[73] depicting "Ashoka's visit to Bodhi tree". A male musician is shown playing the *paṭaha* with curved *koṇas*.

At Barhūt there is a solitary representation of *paṭaha* in the sculptures. The scene[74] illustrating "procession of the monkeys with the elephant" reveals a monkey playing *paṭaha*. It is playing the *ḍaph* with curved drum sticks (Pl. 12a; Fig. II, 4). This instrument is played in the accompaniment of *muraja* and conch.

An excellent depiction of *paṭaha* we get at Amarāvati on a Rail pillar.[75] A dwarf is shown playing it with curved drum sticks. The instrument is a single-sided drum one side of which is curved with parchment. Even the position in which it is shown being played upon in the relief is characteristic of the present day drummer of this type (Pl. 20; Fig. III, 9).

At Nāgārjunakoṇḍa the depiction of *ḍaph* in the sculptures is more than once. The panel[76] illustrating "the transportation of the head-dress to heaven" represents a celestial playing on a dis-shaped drum (*ḍaph*) with two curved drum-sticks. The instrument is suspended by means of a strap and is supported in his thigh (Fig. IV, 10).

These *paṭaha* were used on different occasions. The one used in funeral processions was called *preta-paṭah.*[77] On the war fields the drum like *paṭaha, dundubhi etc.*, were struck. The auspicious drum like *prātah-kālanāndi paṭaha* was struck in the early hours of the morning to indicate the break of the day.[78]

(b) *Small hand drum*

Apart from the *paṭaha* in Sanchi reliefs, there is a rough representation of what looks like a small hand-drum in the scene of "royal visit."[79] A male musician is shown playing upon it. He is holding it by the wooden frame and beats with fingers of the other hand. This small hand drum with its broad rim, probably of wood or metal and covering probably of skin very much resembles the Greek *Tympann.*[80] However, a more definite and clear example of Greek *Tympann* we get in Gandhāra sculptures. The panel[81] revealing

"Family drinking scene of five figures". (Fig. V, 9) reveals a Greek *Tympann*. A male drummer, obviously in foreign dress and hair-style, is shown playing on a small round hand-drum, keeping time with his left foot.[82] It is noteworthy that similar *Tympann* is to be seen on Lekythos vessel of Attic period, datable to 430-20 B.C. On this vessel, a woman is painted as playing on this instrument.[83] However, it is interesting to note its survival in *Marfo*,[84] commonly used by the *fakirs* of India.

## REFERENCES

1. The first stage in the making of music and the development of musical instruments began when primitive man stamped on the ground or slapped his own body to produce rhythmic sound. The sounds produced varied in tone according to whether heels or toes were used in stamping or whether bones or fleshy parts of the body were struck in slapping. With this pre-instrumental music is associated the stamped pit, a hole dug in the ground and converted at the top or mid way downwith a lid of bark. The earliest known prehistoric instrument found always associated with the stamped pit in palaeolithic excavations, is the slung rattle, which was shaken or hung from the ankle, arm or neck of a dancer. It consisted of several shaking pieces, nut shells, hooves, teeth or similar hard objects. The ground rattle became an important instrument in ritual and to mark time for dancing. Like other primitive instruments, it was believed to possess magical power (*Ency. Britanica*, pp. 595-596).
2. H.A. Popley, *The Music of India*, p. 123; Also see "Why is the *mṛdaṅga* so called in *JMA*, XXIV, XXVI, by Raghavan.
3. P. Sambamoorthy, *Catalogue of the Musical Instruments in the Madras Govt. Museum*, pp. 22-23.
4. The concert drums are understood to be those, generally, played to the accompaniment of other musical instruments in musical entertainments or in processions.
5. Krishna Murthy, *op. cit.*, p. 119; Pl. 24 b.
6. *Amara*, p. 29.
7. Krishna Murthy, *op. cit.*, p. 120; Pl. 12.
8. Barua, *op. cit.*, Pl. XXXIX, 34.
9. *Ibid.*, Pl. XLII, 39.
10. Barrett, *op. cit.*, Pl. XII, 118.
11. *Ibid.*, Pl. XXXVI, 36. British Museum No. 12; Elliot Collection Nos. 125 and 126; Sivaramamurti, XIII, 8.

12. Krishna Murthy, *op. cit.*, (Gandhāra Sculptures), p. 86, fig. XX, 6; Cf. Sivaramamurti, *op. cit.*, Pl. XIII, fig. 10, 12; Barrett, *op. cit.*, Pl. XXVII.
13. Krishna Murthy, *op. cit.*, p. 184; *IAR*, 1956-57, Pl. LVII-A.
14. *Amarakośa*, p. 49.
15. Krishna Murthy, *op. cit.*, (Sanchi reliefs), p. 120, Pl. 23-b.
16. *Amara*, p. 29.
17. Sivaramamurti, *op. cit.*, XIII, 9.
18. Krishna Murthy, *op. cit.*, p. 86; Cf. Sivaramamurti, *op. cit.*, Pl. XIII, fig. 9; Ramachandran (Nāgārjunakoṇḍa), Pl. IX-A-1.
19. Dhavalikar, *op. cit.*, p. 119; fig. XXIX, 7.
20. *Ibid.*, fig. XXIX, 11.
21. Krishna Murthy, *op. cit.*, p. 120; Pl. 24-b.
22. Krishna Murthy, *op. cit.*, p. 120, Pl. 21.
23. Barrett, *op. cit.*, VII, 53.
24. Krishna Murthy, *op. cit.*, p. 86.
25. *Ibid.*, p. 86; Cf. Sivaramamurti, *op. cit.*, Pl. XII, figs. 9; Barrett, *op. cit.*, Pl. XXXVI.
26. Krishna Murthy, *op. cit.*, p. 185; fig. XII. 5; Cf. Sivaramamurti, *op. cit.*, Pl. XIII, figs. 8, 9; Barrett, *op. cit.*, Pl. XXXVI; Cf. Gandhāra : Marshall, *op. cit.*, Pls. 7, fig. 9, Pl. 63, fig. 92. See also Herald Ingholt, *op. cit.*, 13, 45, 117.
27. Krishna Murthy, *op. cit.*, p. 185.
28. *Ibid.*, fig. XII, 6.
29. Krishna Murthy, *op. cit.*, p. 185.
30. The process of a sounding the drum louder with *koṇa* is known as *koṇāghāta*. Sincc *koṇāghāta*, the beat of the drum-stick produced a great volume of sound, *koṇāghāta* itself came to mean loud sound as in the orchestra where many *koṇas* would naturally be used—Sivaramamurti, *op. cit.*, p. 147. This accessory (*koṇa*) seems to be purely of Indian origin and does not appear until the Roman period in the 3rd cent. A.D. Neither in Mesopotamia nor in Egypt were drums, even the largest ones, ever played with a stick (*World Archaeology*, Vol. 12, No. 3, 1981, p. 290).
31. Dhavalikar, *op. cit.*, p. 120, fig. XXIX, 8.
32. Krishna Murthy, *op. cit.*, p. 120, Pls. 24b, Pl. 21.
33. Barua, *op. cit.*, Vol. III, Pl. XXXIX, 34.
34. Sivaramamurti, *op. cit.*, Pl. XIII, 8-9.
35. Krishna Murthy, *op. cit.*, fig. XII, 5, 6.
36. V.S. Agrawala, *A Short Guide Book to the Provincial Archaeological Museum, Lucknow*, (Lucknow, 1940), Pl. II, fig. 2a.
37. Krishna Murthy, *op. cit.*, (*Gandhāra Sculptures*), p. 86.
38. M.K. Dhavalikar, *Ajanta—A Cultural Study*, (Poona, 1973), fig. XXIX, 8.

39. Marshall and Foucher, *op. cit.*, 51 b.
40. Krishna Murthy, *op. cit.*, p. 121, Pl. 5c.
41. Barua, *op. cit.*, Pl. XXIII, 18.
42. *Ibid.*, Pl. XCVI, 148.
43. *Ibid.*, Pl. XCVI, 148a.
44. Barrett, *op. cit.*, XXII, 81.
45. *Ibid.*, XXVII. 83; Sivaramamurti, Pl. XIII-12; also see Sivaramamurti, Pl. XII, 10 for the example of *muraja*.
46. Krishna Murthy, *op. cit.*, (*Gandhāra Sculptures*), p. 87, fig. XX, 7).
47. Krishna Murthy, *op. cit.*, pp. 185-186; fig. XII, 7.
48. Dhavalikar, *op. cit.*, p. 120, fig. XXIX, 10.
49. Krishna Murthy, *op. cit.*, (*Sanchi Sculptures*), p. 121, Pl. 25a.
50. Krishna Murthy, *op. cit.*, p. 121; Pl. 12a.
51. The later drum like *Dunhul*, *Dhol*, *Dholki*, *dāk*, of the Moghal times reveal semblance to the *mardala* of the ancient times.
52. *Ibid.*, Pl. XCVII, 148 C.
53. Sivaramamurti, *op. cit.*, XIII. 2.
54. Barrett, *op. cit.*, XLII. 43.
55. Krishna Murthy, *op. cit.*, p. 87.
56. *Ibid.*, p. 87: Cf. Ingholt, *Palmyrene Gāndhāra* Sculptures; no. 25; Hacken, *Guide Catalogue du Musee Guimet*, Pl. iiia.
57. Krishna Murthy, *op. cit.*, (*Nāgārjunakoṇḍa Sculptures*), p. 186, fig. XII, 8; Cf. *Gandhāra*, Marshall, *op. cit.*, Pl. 5; fig. 7.
58. Dhavalikar, *op. cit.*, p. 120, fig. XXIX, 9.
59. *Gāthā Saptaśati*, iii, 5 3. The *mṛdaṅga* of the present day also have similar circular fixture of black paste on their face. This paste is a mixture of manganese dust, boiled rice, and tamarind juice, or a composition of iron fillings and rice paste. The paste is very thick in the centre and thins out at the periphery. (Dhavalikar, *op. cit.*, Sanchi), p. 65).
60. Krishna Murthy, *op. cit.*, (Sanchi reliefs), p. 122, Pl. 35.
61. The later *Nagāra* and *Damāma* of the Moghul times very much resemble the Sanchi specimen.
62. Krishna Murthy, *op. cit.*, p. 122, Pl. 25a.
63. *World Archaeology*, Vol. 12, No. 3, 1981, p. 290, Pl. 38.
64. *Ibid.*, Pl. 39.
65. *Ibid.*, Pl. 40.
66. Krishna Murthy, *op. cit.*, (Gandhāra), p. 88.
67. *Ibid.*, p. 88; fig. XX, 8.
68. Krishna Murthy, *op. cit.*, (Nāgārjunakoṇḍa), p. 186; fig. XII, 9.
69. Dhavalikar, *op. cit.*, p. 120, fig. XXIX, 12.
70. *Raghu*, X, 76; *Amara*, p. 49.

71. This instrument also known as *tom-tom* or *tam* or *tam* is made of resonant wood of hard-baked earthen ware and the heads are covered with skins, drawn tight by side-lacing. It is beaten with fingers or the open hand or with plectrum and produces a hallow monotonous sound. Similar instruments used by the natives of Western Africa, receive the name tom-tom, as do certain types of Chinese gongs (*The Encyclopaedia Americana*, Vol. 26, p. 679).
72. Krishna Murthy, *op. cit.*, (Sanchi), p. 123; Pl. 35c.
73. Krishna Murthy, *op. cit.*, p. 123, Pl. 5c.
74. Barua, *op. cit.*, XCVI, 148a.
75. Barrett, *op. cit.*, XXIII, 81; Sivaramamurti, Pl. XIII, 4.
76. Krishna Murthy, *op. cit.*, (Nāgārjunakoṇḍa), p. 187, fig. XII, 10.
77. Sivaramamurti, *op. cit.*, p. 147.
78. *Harṣacarita*. p. 125; *Raghuvaṁśa*, VI, 56.
79. Krishna Murthy, *op. cit.*, (Sanchi), p. 123, Pl. 15b.
80. Marshall, *op. cit.*, Pl. 31, fig. 49.
81. Krishna Murthy, *op. cit.*, (Gandhāra), p. 88; fig. XX. 9; Cf. Seyffert, *op. cit.*, p. 622; Cf. Cook, *op. cit.*, fig. 47.
82. Marshall, *op. cit.*, p. 38. John Marshall takes this instrument as tombourine.
83. Cook, *op. cit.*, fig. 47.
84. *Marfo* is an Urdu or Arabic word. The *Khanjarī* of the Moghul times betray semblance to this and Sanchi specimen (Som Prakash Verma, *Art and Material Culture in the Paintings of Akbar's Court*, Delhi, 1978, p. 66, Pl. Lii, fig. 19).

## 4

# Wind Instruments (Susira) Aerophones

### *Wind Instruments* (*Susira*)

Of the *susira* variety (a) flute (b) panpipe of single tube (c) compound pan-pipe (d) trumpet (e) conch and whistle occur in the early Indian sculptures.

### (i) *Flute*[1] (*Veṇu*)

At Sanchi two types of flutes namely (a) transverse or horizontal flute and (b) end flute or vertical flute are represented. Both the varieties are based on the principle of breath of air escaping through holes made in bamboo tube; they can be easily manufactured.

### (a) *Transverse or Horizontal Flute*

The flutes that appear in the reliefs are tubular having their sound hole in the side of the tube near the proximal end, which is closed. They have usually open stops (holes) with varying number.[2] These finger holes, *tāra randhras*, which would be in alignment with the sound hole or mouth hole, *mukha randhras* are not visible in the reliefs and as such the number of holes of the flute cannot be known.

The flute is frequently represented in the reliefs and it is seen played in the accompaniment of other musical instruments in musical entertainment. The male musicians are seen in the reliefs invariably playing upon this type of instrument. Thus the scenes[3] depicting the "Mahā Kapi Jātaka" reveals a male musician playing upon a transverse flute. Similarly, the scenes depicting "the transport of the relics"[4] (Pl. 8), "the Great Miracle of Sambodhi"[5] (Pl. 5), "the return of the perfectly accomplished Buddha",[6] "Ashoka's visit to the Bodhi tree"

(Pl. 4)[7] and "the Royal Visit"[8] depict flutes being played upon in the accompaniment of other musical instruments by the male musicians.[9]

At Amarāvati the depiction of transverse or horizontal flute occurs at several places. A fine example of a transverse flute occurs in the panel[10] depicting Māndhātu Jātaka. A lady attendant is seen playing it in the accompaniment of other musical instruments in musical entertainment. (Pl. 15, Fig. III, 12). In the panel[11] illustrating *Mahābhinishkramaṇa* scene, a male musician is seen playing on the horizontal flute. It is tubular having the sound holes in the side of the tube near the proximal end (Pl. 22; Fig. III, 13 & Pl. 17; Fig. III, 18). Again, in one panel[12] revealing "Adoration of the *stūpa* symbolizing Buddha's death" two flutists playing on horizontal flute can be seen. Among them a lady musician is shown playing the flute holding it horizontally from the sound hole in the side of the tube near the proximal end. (Sivaramamurti, XIII, 6).

At Gandhāra, as many as five times this variety of instrument appears in the reliefs.[13] Male or female musicians, palace attendants, celestials, *nāginīs* are seen in the reliefs playing upon this type of instrument. However, the best example of the horizontal flute can be seen in the "Stair-riser reliefs".[14] A male musician appears with this type of flute (Fig. V, 10).[15]

In another panel, illustrating "Life in the Palace"[16] a lady attendant is seen with a flute. From the foreign dress she wears, and the foreign hair-style she exhibits, she appears to be a foreigner, probably a Greek, in that case, the horizontal flute which she is shown playing may also be a flute of foreign origin. Presumably, this was introduced to the Gandhārians by the Greeks.[17] According to a Greek legend, Athene invented the flute. To trace its antiquity still further the horizontal flute gets its depiction on reliefs of the old kingdom as part of orchestras. It is 1 *m.* long and is held obliquely[18] (Pl. 35), from which may be inferred that there was no proper mouth-piece. The finger-holes, four in number, are pierced in the lower part of the pipe. A shorter flute is shown being played almost horizontally, straight in front of the musician, which means it was either a duct flute or an oboe[19] (Pl. 44). Finally the cross or transverse flute appears in the Ptolemaic period.

At Nāgārjunakoṇḍa, the flute is not represented any where in these reliefs. However, it does not mean that the people of the Ikshvākū period did not know the flute or its usage. In fact flute and lute were the most favoured as can be known from the contemporary literature. Similarly, flute is conspicuously absent at Barhūt and Mathura which again can be deduced to the same reason explained as in the case of Nāgārjunakoṇḍa.

The flutes depicted in the Ajanta murals are held along the mouth. They have knobbed or obliquely cut ends. The specimen illustrated in the Mahājanaka Jātaka in Cave no. 1 Pl. 33; Fig. VI, 14)[20] has knobbed ends and a hole at some distance from one end.

### (b) *End flute or vertical flute*

There is a solitary representation of panpipe of single tube in the Gandhāra reliefs. The panel[21] illustrating "Nāgarāja with musicians and attendants" reveals a nāginī playing with a panpipe of single tube (Fig. V, 11). The instrument has an opening at one end from which she is seen blowing, while the other appears to be closed. This panpipe may represent the Greek syrinx. It should be noted that the panpipe is depicted in the relief as being played by a woman who from her dress, hair style and appearance, seems to be a foreigner, probably a Greek. Presumably, therefore, the pan-pipe could have been introduced to Gandhāra by the Greeks.

The syrinx was a folk instrument in Greece since Homeric times. To trace its antiquity, syrinx was an Arcadian Nymph, daughter of a river god. She was changed by her sister into a reed in her flight from the enamoured Pan. Pan cut this reed into seven or nine pieces and joined them together with wax in gradually decreasing lengths to form the instrument called a syrinx or pan-pipe. This was chiefly used by herdsmen and shepherds and is one of the attributes found in pictorial representations of Pan.[22]

The Greek syrinx consisted invariably of a single tube, either open at both ends or closed at one end. The air was blown against the edge of upper openings. Two or more tubes of varying lengths were usually combined to form compound pan-pipes.[23] They were often graduated in length to form scale.

Such a composite flute (double-pan-pipe) gets its solitary representation in Sanchi relief. The scene[24] depicting "the feast celebrated by the Mallas of Kusinagara" illustrates a composite flute being played upon by a male musician whose dress, cap and boots reveal him to be a Greek. Evidently, the introduction of double pan-pipe in Sanchi could have been the act of Greeks. The instrument under reference consists of two flutes joined together at one end from which it is blown[25] (Pl. 6; Fig. I, 6). The Greek painted pottery betray at several places this compound pan-pipes. On three vessels, amphora, cup and a bell krater of Attic period the composite pan-pipe can be seen painted.[26] The Chinese too used a very similar instruments from very early period.

What is interesting is that a Hittite relief in the Louvre shows an instrument with six equal pipes, which must have been stopped at different levels in order to produce different pitches. The instrument, common in Greece, was introduced from there in to Egypt in the Greco-Roman period.[27]

The *fistula* or a pan-pipe similar to Greek syrinx was used in Germany in Roman period (51 B.C. to 4th-5th centuries A.D.) by shepherds and in pantomimes. It consisted mostly of several tube pieces of different lengths side by side and were also called "stopped pipes."[28] A Roman *fistula* of earthen ware is preserved undamaged in Cologne.[29] It also appears on a glass-flask, where a little monkey holds with both hands a panpipe of seven tubes.[30] A particularly fine *fistula*, with beaded rim decoration is to be found being played by a pan at the left side of the aedicula on the first century A.D. tomb of Poblicius[31] (Pl. 45). Along the upper edge we can see ten tubes, beneath that are twelve tubes of which six are shown to be short, the rest longer. This *fistula* was probably cut from a wooden block, and the individual tubes were filled up with wax in order to get different pitches. This kind of instrument was not limited to mythological associations but was actually played by the ancient inhabitants of Cologne.

In India, however, the instrument pan-pipe single or composite does not appear to have been found favour with Indians as it is totally absent in the later period. Yet, surprisingly enough, it is in use in the country, particularly in Punjab, Uttar Pradesh and northern parts of Madhya Pradesh where the cow-boys, especially those belonging to the Ahir community play on it and the instrument is known as *alogoja*.[32]

### (c) *Trumpet* (*Tūriya*)

In the scene[33] depicting "the feast celebrated by the Mallas of Kusinagara", are illustrated some persons presumably foreigners either Sakas or Greeks[34]—as playing upon trumpets, which have their sides tapering towards a thin curved mouth, while they broadened out towards the upper end which shaped like a swan's head.[35] (Pl. 6; Fig. I, 7) Evidently, the musical instrument could have been Greek Salpinx or Roman *tuba*. It gives a deep clangorous sound and was used generally to give war signal in the army or employed in religious ceremonies.[36] Somewhat parallel example of the Sanchi specimen we get at Gandhāra. It is represented thrice in the reliefs.[37] The *vādakas* of this instrument, from their dress, appear to be either Sakas or Scythians or Greeks. The trumpet has its sides tapering towards thin curved mouth.[38] (Fig. V, 12).

Trumpets occur both in the earlier and later group of Ajanta paintings. The trumpet illustrated in an early panel portraying "arrival of Rāja", is long and tubular[39] (Fig. VI, 15). It has tapering sides and wide end. A cupshaped attachment is fitted at its mouth for blowing. A best example of a trumpet in the later paintings can be seen illustrated in the procession scene, (Fig. VI, 16).[40] It is smaller in size as compared to the above one but it is decorated.

The horns and trumpets have long antiquity. In Mesopotamia a pair of possible horns seems to take part in the concert depicted on the Chogha Mish seal impression[41] (Fig. VII). The Hittites had short trumpets[42] (Fig. X) shown on reliefs at Eyuk and Carchemish and may be regarded as ancestors to the Jewish *Shofar*.

In Egypt the horn is never depicted. Some specimens in terra-cotta have been found. They were probably reserved for signalling. Best known is the pair, one in silver and one of bronze found in the tomb of Tut-ankhamen[43] (Pl. 46). But it also served for military purposes, as pictured for the first time about 1515 B.C.

A tube player is mentioned on a tombstone at Cologne[44] (1st cent. A.D.). Such representations in Germany during Roman period were plenty.

### (d) *Conch* (*Śaṅkha*)

The conch gets portrayal in the Sanchi reliefs frequently. It is invariably shown being played in the accompaniment of other instruments in royal processions. Thus the scene representing "Asoka's visit to Bodhi tree", illustrates the conch five times (Pl. 4).[45] The male musicians are shown playing upon it. The conch is held by them in both the hands and is being blown while keeping it directly on the mouth. The process of blowing the conch was known as *dhamana* (blowing) or *pūraṇa* (filling).

The conch may be blown in three ways—side blown, end blown or blown through an attached mouth piece. In the side blown and end blown cases, the conch is blown into directly. In the Sanchi reliefs, the conch blowers have adopted the second method, namely, the end blown. This method of blowing the conch can be seen in the scenes representing "the return of the perfectly accomplished Buddha",[46] "the royal visit",[47] "the transport of the relic"[48] and "the war relic".[49]

At Barhūt[50] the conch with pipe occurs invariably as accompanied with *mṛdaṅga*. The shell represented in 'the monkey and the elephant scene' in which it is fastened at the end of the pipe is remarkable.[51] (Pl. 12a; Fig. II. 6; Pl. 13; Fig. II, 5). At Amarāvati,[52] both the varieties-with and without pipe—are available. The panel illustrating procession of Suddhodhana from the city represents a male musician playing a conch.[53] It is held by him in both the hands and is being blown directly, keeping it on the mouth. The act of blowing the conch is clear from his puffed up cheeks (Pl. 21; Fig. III, 14). In another case, conch with a pipe attached occurs. Thus in the panel[54] illustrating Māndhātu Jātaka, a lady is shown blowing a conch through attached mouth-piece. A long pipe is attached to the conch and lady is shown holding it horizontally. She holds one end of the pipe at the mouth, while the left hand is keeping the conch horizontally at the other end (Pl. 15; Fig. III, 15).

At Nāgārjunakoṇḍa, the conch is represented thrice in the sculptures[55] (Fig. IV, 11). The panel illustrating 'transportation of the head-dress to heaven', 'nativity of the Buddha,[56] and 'a sculpture fragment'[57] reveal a conch blower. In the instance a celestial is shown blowing a conch to the accompaniment of the other musical instruments in a procession. In another case also a celestial is shown blowing a conch but singly. In both the cases the conch is held by the celestials in both the hands and is being blown while keeping it directly on the mouth.

The sculptural depiction of conches at Nāgārjunakoṇḍa is also attested to by the recent excavations at the site.[58] The recent excavations have also yielded conches, of which the two recovered from the vicinity of Aṣṭabhujasvāmi temple bear inscriptions reading "*bhagavato Atha bhujasāmisa*" and "*dachchiṇa Kanasara*." The discovery of the conches from the monastic and temple areas at Nāgārjunakoṇḍa, in the recent excavations, is highly suggestive of their religious function. Interestingly, another Buddhist site, Salihundam[59] also yielded, as a result of the excavation, inscribed and uninscribed conches in the monastic site. One of the inscribed conches bears a monastery plan and reads "*Govalavysa Pigasa Danams* (*a*) *lip* (*e*) *Daka* '*chidiyasa*' (the gift of Govalaya Piga in favour of the *chetiya* at Salipetika). It refers to the Buddhist *chaitya* at Salipetika (modern Salihundam.) The donor or the benefactor of the conch bearing the inscription seems to one *Piga* (*Piṅga*), an inhabitant of *Govalaya*. The other inscribed conch reads. *Gahapati aubudhisabhariya-chadakaya dana salipataka Thu (sa) katake*". "The gift of the Chadaka, wife of the house-holder Aubudhi at Thubhakataka in Salipetika". The name Salipetaka mentioned here is apparently Salipetaka of the above inscription. *Thubhakataka* appears to be the name of a religious establishment in which *thuba* probably stands for Sanskrit *stūpa*.

The excavations of the many early historical sites have yielded conches both from secular and religious establishments thereby indicating the popular use of the wind instrument conch.

At Mathura there is a solitary representation of conch. One of the attendant Hindu deities depicted around the image of *Ṛishabha*, the first *Tīrthaṅkara* holds a conch in his hand.[60] (Pl. 30).

In Ajanta caves[61] also, the depiction of the conches are profuse.

At Ajanta we get conch representations devoid of metal pipes attached to them. The mural illustrating Mahājanaka Jātaka in Cave 1 provides an excellent example of conch[62] (Pls. 33, 34 & 32; Fig. VI, 13).

Of the three varieties of conch-shells, namely, *Turbinellarapa*, *Mazzarapa* and *Volutagravis*, the first variety is used for making the wind instruments.[63] However, the processing the conch, skill is required to drill a hole at the base in such a manner as not to injure the whorls. When blown through, the wind, passing through the different whorls, produces a loud, shrill, piercing sound. In the ordinary shell the whorls run from right to left, but when the whorls are reverse, that is from left to right, that conch shell variety is called *dakshiṇāvartī*. It is highly priced because of its abnormal variety. Sir Emerson Tennet[64] observes "It (*dakshiṇāvarta* variety of conch shell) is regarded with such reverence that a specimen formerly sold for its weight in gold, but one may now be had for four or five pounds".

The conch is quite naturally associated with the ocean. As a matter of fact one of the Sanskrit names for conch is *jalaja* (born of water. Reciprocally, the ocean is also called *Śaṅkhin*).

In the epic age conches were largely employed as a war signal.[65]

It was generally associated with the *bherī* or *dundubhi* and was blown at intervals.[66] The warriors always carried the conches along with them on battlefields.[67] They were so important and propitious that each hero of the bygone ages named his conch.[68] Thus Pāñcajanya of Krishṇa, Devadatta of Arjuna, Pauṇḍra of Bhīma and Anantavyaya of Yudhiṣṭhira acquired fame. Incidentally, Kauṭilya testifies to the use of *saṅkhas* in the war.[69] Likewise, the Jain and Buddhist literature and the words of Kālidāsa as well list the *śaṅkhas* among the musical instruments known to the period.

The conch has always a sacred association for the Hindus.[70] Its religious use in India has been continuous for several millennia. The temple ritual either gives an opening fanfare or plays a sort of rhythmical accompaniment. The conch is still regarded as a sacred instrument in the Hindu religion, and it is also an important ritual instrument in Buddhism in India, Tibet, Ceylon, South East Asia and over much of the Far East.[71]

### (e) *Whistles*

A hallow bird-shaped terracotta object probably a whistle is unique in our ancient material. The bird figure has a round or flat or horizontal blow-hole in the forehead. This type of terracotta whistles have been discovered in many of the early historical sites like Nāgārjunakoṇḍa, Amarāvati, *etc.* Sometimes, these hallow terracotta bird whistles are also seen filled with small shots to facilitate them to function as rattles also. Such articles were generally toy articles as they are even to this day. Animal shaped whistles are known through out the world among early people. They were some times connected with magic, particularly in conjunction with funeral rites.[72]

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2. Today the flute has eight holes. But in early days it had only seven holes-*Veunṁ gāyāni sapta chidraṁ*, (*Mṛicchakaṭikā*, Act, 7, p. 118).
3. Marshall & Foucher, *op. cit.*, 61.1.
4. *Ibid.*, 61.1.
5. *Ibid.*, 61.3.
6. *Ibid.*, 50.a.
7. *Ibid.*, 40.3.
8. *Ibid.*, 35.b2.
9. Krishna Murthy, *op. cit.*, p. 124.
10. Barrett, *op. cit.*, XXVII. 83.
11. *Ibid.*, XXVIII. 82.
12. Sivaramamurti, *op. cit.*, XIII. 6. Also see Pl. XXII. 3.
13. Krishna Murthy, *op. cit.*, (*Gandhāra Sculptures*), p. 89; Also *vide* Herald Ingholt, *op. cit.*, V. 1, X. 1, 14, 38; Marshall, *op. cit.*, Pl. 56, Fig. 82, cf. Specimen of Sanchi, Barhut, Amaravati, Goli. A bigger specimen of this variety is seen on the Kuthelota (Burgess, *Buddhist Cave-temples*, p. 6, no. 5).
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15. Krishna Murthy, *op. cit.*, Fig. XX, 10.
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17. Seyffert, *op. cit.*, pp. 239 & 380.
18. *World Archaeology*, Volume 12, No. 3, p. 291, Pl. 44.
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21. Krishna Murthy, *op. cit.*, Fig. XX-11.
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29. R.G.M. in V. no. N 3231, quoted from *World Archaeology*, Vol. 12, No. 3, p. 316.
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32. M.K. Dhavalikar, *Sanchi-A Cultural Study*, (Poona, 1968), p. 67.
33. K. Krishna Murthy, *Material Culture of Sanchi*, (Delhi, 1983), p. 125; Pl. 25a.
34. Whether the men here represented are Greeks or Sakas or / the descendants of either can only be conjectured. They were at any rate followers of the local religion, whatever, their original nationality and that *Greco-Bactrian*, and

Scythian colonists and adventurers penetrated far into India proper and became mixed up with the local population, there are many independent proofs (Maisey, *op. cit.*, p. 32).

35. Krishna Murthy, *op. cit.*, (Sanchi), Pl. 25a.
36. Seyffert, *op. cit.*, p. 556 and 660.
37. Krishna Murthy, *op. cit.*, (*Gandhāra Sculptures*), p. 90.
38. *Ibid.*, Fig. XX, 12.
39. Dhavalikar, *op. cit.*, p. 121, Fig. XXIX, 15.
40. *Ibid.*, Fig. XXIX, 16.
41. *World Archaeology*, Vol. 12, No. 3, Pl. 38.
42. *Ibid.*, Pl. 40.
43. *Ibid.*, Pl. 48.
44. *Ibid.*, p. 325
45. Marshall & Foucher, *op. cit.*, 40.3; Krishna-Murthy, *op. cit.*, (Sanchi reliefs), Pl. 5c.
46. Marshall & Foucher, *op. cit.*, 50a; Krishna-Murthy, *op. cit.*, Pl. 6a.
47. Marshall & Foucher, *op. cit.*, 51.b; Krishna-Murthy, *op. cit.*, 15.b.
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50. A. Cunningham, *Stūpa of Barhūt*, 1, Pl. XXXIII, Fig. 1, 2, and 3; Also Burgess, *op. cit.*, XCVII-148c.
51. *Ibid.*
52. Sivaramamurti, *op. cit.*, Pl. XII, Figs. 1 & 5.
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54. Barua, *op. cit.*, Pl. XXXVI. 36; Sivaramamurti, *op. cit.*, XIII. 2.
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62. Dhavalikar, *op. cit.*, Fig. XXIX, 13.
63. Rajendra Lal Mitra, *Indo Aryans*, Vol. 1, p. 285.
64. Mitra, *op. cit.*, 1, p. 286.
65. *Rāmāyaṇa*, IV. 42.35; 73.13.
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67. *Ibid.*, VII. 63; *Mahābhārata*, VI-1, 15-18; IV, 66, 11; VI, 1-19. Also *vide Indian Culture*, Vol. 4, p. 451.

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## 5

# Solid Instruments (Ghana): Idiophones:

Born of the desire to support man's natural feeling for dance and rhythm, this class of instrument must have succeeded the more-primitive human actions of stamping the ground slapping the body and clapping the hands. As such under the category of idiophones are included, apart from the massive cymbals, the clappers, rattles, and bells.

### 1. *Clappers*

Clappers are understood to be those simplest percussion sticks generally held in each hand and struck against each other thereby producing sound. These clappers are played solo or in groups while dancing rhythmically and such plays are known by the name '*kolāṭṭam*' in Telugu and *kolāṭa* in Kanarese. The sound produced by the clappers would be melodious and in tune with the steppings.

Although the excavated remains do not preserve this kind of clappers due to the reason that they were made of wood, the perishable material, the sculptures of early Indian art delineate examples of clappers.

The Sanchi sculptures depict them more than once. In the panel[1] depicting the Māra's army, a demon of the Māra's army is shown holding a piece, presumably of wood in each of his hands (Pl. 2). He is seen in the act of striking one piece with the other. Obviously he must be dancing while-striking the sticks. As can be seen from the panel, he is playing the clappers in a music party. This kind of playing with the clappers is generally seen in music parties where people strike the clappers while dancing individually or in groups.

At Nāgārjunakonda the depiction of the clappers is realistic. An *āyaka* cornice stone[2] reveals a person holding a piece presumbly of wood in each of his hand. He is shown in the act of striking one clapper with the other. Evidently, he must be dancing while striking the clappers.

It is interesting to know that in Mesopotamia similar kind of clappers were in vogue for similar purpose. They are either straight or bent like boomerangs[3] (Fig. XI). A Sumerian shell plaque discovered at Ur and datable to 2600 B.C. depicts a person striking bent clappers.[4]

In Egypt, clappers imitated a fore arm in bone or ivory, ending in a sculptured hand[5] (Pl. 47).

Another type of clapper which has parallel in Egyptian example (Pl. 48) occurs in the Nāgārjunakoṇḍa sculptures. The Egyptian type is made of a piece of flexible wood slit down the middle, except for a short section at the base, serving as a handle.[6] The Nāgārjunakoṇḍa specimen gets its representation in the sculpture revealing "Gift of Earth". One of the servants standing behind the children holds a curious thing which appears to be a clapper. It has the appearance of a forked stick with a knob. It consists of three parts-a handle and two pieces of wood of which one is thicker than the other. The handle may be the continuation of the thicker piece. To this attached one end of the thin piece by same contrivance which kept the piece loose. Since the joint is covered by the palm of the holder. the details of the joint are not available. The clapper sound was produced by shaking the handle rapidly, When the loose thin piece struck the thicker one in rapid succession, the clapper sound was produced. If this presumption is correct, then the object illustrated in the relief is a clapper.[7]

## 2. *Rattles*

Although the sculptures do not seem to represent this type of instruments in early Indian art, one can visualise them from the excavations. Many early historic sites like Amarāvati[8] and

Nāgārjunakoṇḍa[9] have yielded many terracotta rattles in the form birds and animals. Interestingly, the Nāgārjunakoṇḍa excavations have yielded many such examples. In one case a few terracotta birds are seen filled with pebbles to enable to produce rattling sound when the bird is shaken in rapid succession. Similarly, a few terracotta monkeys also do contain pebbles filled in them for their use as rattle. Evidently these toyrattles could have been the play-instruments to the childern as they are even to this day.

Interestingly, as early as in second millennium B.C. in Mesopotamia such rattles were available. The existed in two categories : gourd and 'pie-crust' rattles, filled with pebbles or other small, hard objects, made of clay, sometimes in animal shapes and found both in Mesopotamia and Egypt. The Babylonian and Iranian rattles databies to early second millennium B.C. are presently preserved in British Museum, London.[10] The earthenware rattles in the from of birds belonging to Roman period from Germany offer great similari ty to the Indian examples.[11]

### 3. *Sliding rattles*

The simplest form of sliding rattles consist of an iron ring (principal ring) on which hand several smaller rings ('sounding rings'). The size of the principal ring is evidently bigger than the hung rings. Such rattles are in evidence in historic sites. Particularly, the excavations at Nāgārjunakoṇḍa yielded such iron rings or copper rings but the archaeologists usually classify these objects as votive rings, bracelets or artefacts with unknown functions. But they can be sliding rattles.

It may be interesting to note such sliding rattles were discovered among Norwegian finds[12] belonging to the late iron age. These Norwegian rattles probably served as end mountings on waggon and sledge straps in addition to their sound-producing function.[13] The find circumstances indicate that the ranglers were reserved for the most distinguished person in the society. Perhaps they were a sign of high position-symbols of spiritual and secular power. As sound producer, the rangler may have had apotropaic, practical and entertaining' functions simultaneously, with presumed priority for the first mentioned. Such combined functions may have been the rule for all types of early sound-producing devices/musical instruments. Specific sliding rattles of iron are even found among material from Finland's late Iron Age.[14]

### 4. *Bells*

This type of instrument comes under clapper variety. Although the early Indian sculptures do not seem to represent bells profusely, the early historic sites have yielded many examples of the bells and bell-clappers. Almost every excavation in early historic site has yielded this variety. At Nāgārjunakoṇḍa we do have copper bells discovered from the excavations. The small bell-clappers discovered at Nāgārjunakoṇḍa could have been used to tie round the neck of the animals. As they moved, the bell-clappers produced the sound. Interestingly, at Barhūt a panel[15] illustrating "capture of the elephant by the monkeys" portrays a monkey ringing the bell-clappers. Two such bell-clappers are seen held by the monkey by means of two ropes (Pl. 12).

Many bells in silver or gold or bronze were in use in the late period in Egypt and the near East.[16] There is a large Assyrian bell, richly adorned in the Berlin Museum.

### 5. *Cymbals*

In early Indian art, the depictions of cymbals are many. It appears in the sculptures of Barhūt.[17] At Sanchi there is only a solitary representation of *ghana* in the whole range of reliefs. Even that representation suffers from the rough representation. However, one can make out the person playing with cymbals in the scene representing the "return of the perfectly accomplished Buddha". He can be seen by the side of the Guitar player. The cymbals are simple and plain.[18] Even to this day, such *Kaṁśya tālas* are used particularly in *bhajans* and *harikathā kālakṣepams*.

At Amarāvati the panel[19] depicting "Nanda and beautiful wife" reveals a lady musician playing on cymbals (Pl. 17).

At Gandhāra a sculpture[20] portraying "Base ornamented with garland and Erotes" depicts a pair of cymbals (Fig. V, 13). Interestingly, the relief from Jamalgarhi in Yusufzai, depicting the renunciation scene, reveals a group of girls playing on the musical instruments. There a harp, a flute, drums and cymbals are shown.[21]

The only *ghana* instrument that occurs in the Nāgārjunakoṇḍa[22] reliefs is a pair of cymbals possibly of some metal. On a *āyaka* cornice stone is carved a dwarf sounding the cymbals (Fig. IV, 12).

In the Mathura sculptures there is a clear depiction of cymbals. On one of the sculptures[23] of a *toraṇa* a male is shown playing the cymbals (Pl. 31).

In the Ajanta Paintings the depictions of cymbals are many.[24] The cymbals illustrated in the Apsara scene[25] in cave 17 are tulip-shaped and are tied with string (Pls. 33 & 34; Fig VI, 17). A bigger variety with broad and flat rim is also represented in the painting portraying *Samsāra cakra* in cave 17. The cymbal resembles the *jhānj* which is used even to this day in festivals. Similar cymbals dated to 7th cen. A.D. occur at Bhita.[26]

Outside the country this instrument has greater antiquity. Small, massive cymbals, probably representing originals of bronze are depicted on a Babylonian Plaque.[27] The type survives in Graeco-Roman art. They are held in each hand and struck in a horizontal movement. Another form, seen on Assyrian and Hittite reliefs, is conical and struck vertically.[28]

In Egypt, large cymbals, 150 *m.m.* in diameter, were probably held and struck like present-day examples. They are, however, only depicted on terracottas of the Greek period.[29] But one pair preserved in the British Museum (Inv. no. 6375) is supposed to date back to 850 B.C. Another, on a Syrian bronze, from about 1200 B.C. is in the Musee du Cinquantenaire.[30] The Greek name for it was adopted in the ancient world and no coptic name existed.

Most impressive is an original of a cymbal (*cymbalum*) found in a baptismal cellar of the Cybele sect at Neuss on the Rhine. It belonged to the Roman period.[31] These cymbals are usually found in pairs. They probably had a sacramental function in the course of mystery ceremonies, together with the tympanum. The cymbals also appear on the tombstone of Marcinus of 1st cen. A.D. where they are played by a dancing maenad, Similarly, their occurrence on the sarcophagus at Cologne is quite interesting.

Clapper-cymbals from Trier belonging to second half of the 4th cen, A.D. are the fine examples of Roman musical instruments in Germany.[32]

### 6. *Gong*

Generally gongs are played to indicate the sunrise particulary in the temple premises or any religious festivities. Such gongs are termed as *prātah-kālanandi* gongs. *Harṣacarita* informs about *prātah-kālanandi paṭah.* Interestingly at Amarāvati there is a depiction of what appears to be a gong presumably utilized to the similar purpose explained above. The panel[33] potraying "Monks adoring as the gong is sounded by dwarfs" reveals two dwarfs carrying a gong tied to a bar. Two dwarfs are seen carrying the bar on their shoulders evidently due to the weight of the gong probably of brass or bronze. The gong is played with a *koṇa.* One of the dwarfs has raised his left hand so high in the act of beating the gong vigorously by the plectrum. The whole scene is realistic (pp. 23).

## REFERENCES

1. Marshall and Foucher, *op. cit.*, 29.2; Krishna Murthy, *op. cit.*, (Sanchi), (Pl. 24b).
2. Krishna Murthy, *op. cit.*, (Nāgārjunakoṇḍa).
3. *World Archaeology*, Volume 12, No. 3, Feb. 81, Pl. 26.
4. *Ibid.*, p. 288.
5. Marcelle Ducbesne-Guillemin, 'Music in Ancient Mesopotamia and Egypt', *World Archaeology*, Volume 12, No. 3, Feb. 81, p. 288 and Pl. 2).
6. *Ibid.*, p. 288. Such instruments (clappers) continued in use until the late period and are to be found in Syria.

7. The same object is also taken to be a rattle and described in my book on Nāgārjunakoṇḍa.
8. The excavation conducted at Dharaṇikoṭa near Amarāvati yielded such rattles.
9. Excavations at Nāgārjunakoṇḍa during 1954-58 with which the author is also associated.
10. *World Archaeology*, Volume 12, No. 3, Feb. 1981, Pl. 32.
11. J. Rimmer, *Ancient Musical Instruments of Western Asia in the British Museum*, (London, 1969), pp. 37-38.
12. About 240 ranglers have been discovered in richly furnished Norwegian graves. *vide World Archaeology*, Volume 12, No. 3, Feb. 81, p. 251, Fig. 3 and also Fig. 2 for comparison.
13. *World Archaeology*, Vol. 12, No. 3, Feb. 81, p. 252, Fig. 4a and 4b.
14. A. Hackman, Brandgaraberfled Pukkila : Rasseln. Finska Fornminnes-foreningens tedskrift, p. 118f. Plate 5b; quoted from *World Archaeology*, Vol. 12, No. 3, p. 252.
15. Barrett, *op. cit.*, XCVI, 148.
16. Maria E. Ginsberg-klar—"The archaeology of musical instruments in Germany during the Roman period", p. 318.
17. A. Cunningham, *Stūpa of Barhūt*, p. 126.
18. Krishna Murthy, *op. cit.*, (Sanchi), p. 127, Pl. 6a.
19. Barrett, *op. cit.*, XXVII. 83.
20. Krishna Murthy, *op. cit.*, (Gandhāra), p. 90-91, Fig. XX. 13.
21. J. Burgess *Buddhist Art in India*, p. 129.
22. Krishna Murthy, *op. cit.*, (Nāgārjunakoṇḍa), Fig. XII, 12.
23. Smith, *op. cit.*, Pl. XXXII.
24. Yazdani, *op. cit.*, I, p. 17, Pls. XII-XIII. 11, p. 4, Pl. VIIa-b; 11, p. 49, Pl. XLIV-A; IV, p. 24, 26, 93.
25. Dhavalikar, *op. cit.*, Fig XXIX, 17.
26. *ARASI*, 1911-12, p. 90.
27. British Museum, inv. no, 91 906, quoted from *World Archaeology*, Vol. 12, No. 3, Feb. 1981, p. 289.
28. Marcelle Duchesne-Guillemin, *op. cit.*, p. 289.
29. *Ibid.*, p. 289.
30. Brusseh, inv. no.e. 3409, quoted from *World Archaeology*, Vol. 12, No. 3, Feb. 81, p. 290.
31. *World Archaeology*, Vol. 12, No. 3, p. 318; *vide* H. Von Petrikovits, Novaesium-Dasromische Neuss in *Kunst Und Altertumam Rhein* (1957). 3, RGM Koln.
32. *World Archaeology*, Vol. 12, No. 3, p. 318. Compare Egyptian examples Pl. 29 in the same journal.
33. Sivaramamurti, *op. cit.*, XIII-13; Pl. XXII-2.

# Epilogue

The foregoing study of the archaeology of the Indian musical instruments portrayed in the sculptures of Sanchi, Barhūt, Amarāvati, Gandhāra, Nāgārjunakoṇḍa, Mathura and in the paintings of Ajanta tries to visualise clearly, innumerable variety of musical instruments that prevailed in the Sātavāhana, Suṇga, Ikshvāku, Kushāṇa, Vākāṭaka-Gupta periods and among the people who lived in the northwestern part of India. The kaleidoscopic variety of musical instruments known to the period under review is extravagantly amazing and alluring.

The period under study(*i.e.*,) from 2nd Cent. B.C. to the 6th-7th centuries A.D. was a formative period in Indian history. It was an era of considerable political stability and tranquility. The immense economic affluence of the people coupled with religious zeal undoubtedly created a congenial atmosphere for resulting in manifold creative activities. The throbbing society was ever ready and fit to assimilate new trends as also to transform the older ones. Hence we notice, during the period under review, the emergence of new innovations and the retrieval of older traditions. In the matter of musical instruments several indigenous traits and some foreign influences are unmistakably perceivable.

The contemporary literary sources (both Indian and to a considerable extent un-Indian) of the period form a vital source in supplementing and supplanting the sculptural and mural data of the musical instruments. Amazingly, they aver to the varieties of musical instruments and many of them do find place in lithic and mural representations. The early Indian artists ably immortalised many of the literary descriptions of the musical instruments by transmuting them pulsatingly in lithics and murals. However, the discovery of a seal bearing carving of a harp from the ruins of Mohenjodaro in the Indus valley really inducts inducement to the subject of the musical instruments.

The very mention of the musical instruments like *bākura*, *nāḍi*, *pingā*, *godhā*, *karkari*, *dundubhi*, *āghāṭi*, *vānicī*, *gargara*, *etc.*, reflects the rich variety of musical instruments known to the vedic Indians besides betraying the adroitness of the artists who created them. Curiously, they range from the gintang—which could be considered as the origin of zithers like *Rudra-vīṇā* to the dulcet sitar.

Many musical instruments were in use in later *Saṁhitas* and *Brāhamaṇas* besides the *upaniṣads*. The Aitrarēya Āraṇyaka goes to the extent of giving, in detail, the parts of the *viṇā* as *śiras* (head), *udara* (cavity), *ambhaṇa* (sounding board) *tantrī* (string), and *vādana* (plectrum). Correspondingly, we do get the terms like *śiras* (head), *ambhaṇa* (curved board), *pokkhara* (sound board), *vīṇādaṇḍa* (curved arm), *etc.*, as parts of *vīṇā* in the Buddhist texts. What is interesting is that in the *Puruṣamedha* (human sacrifice) *vīṇāvāda*, lute-player is included in the list of victims. *Vajasaneyi Saṁḥitā* XXX.20; *Taittirīya Brāhmaṇa*, iii. 4, 15, 1). It is said that special musical instruments 'earthen drum' and *Vāna* (harp with hundred strings-(*Śatatantu*) were played in the *Mahāvratariti*.

Several musical instruments were known to the *Sūtra* period. It was ordained that bride should play during the pre-wedding rites on the musical instruments like *nāḍi* (reedpipe), *tūnva* (wooden flute), *panva* (cymbal) and *mṛdaṅga* (drum). Similarly, it is laid down in the *Mānava Gṛihya Sūtras* that the harp should be played when the brides ostentatiously sprinkled under the yoke of a chariot or a cart. Moreover, the same *sūtra* asserts that four unwidowed women should play on a musical instruments *nāḍi* during the pre-wedding rite.

In the time of Pāṇini, the drummers who played on *maḍḍuka* and *jhārjhara* were known as *maḍḍukika* and *jhārjharika* respectively while *dardurika* played on a drum made of earthen jar. Pāṇini calls the instrument player *parivādaka* whom Patañjali in his *Mahābhāshya* considers him as a lute player.

In the *Rāmāyaṇa* Lava and Kuśa are said to have sung *Rāmāyaṇa* to the accompaniment of *vīṇā*. The *Mahābhārata* is also turgid with references to the musical instruments.

The celebrated work of Patañjali, the *Mahābhāshya* throws much light on the musical instruments of the Kushāṇa times. Patañjali calls *mṛdaṅga* specialist as *mṛdaṅgikah* (*Mṛdaṅga Vādanam Śilpamanya maṛdaṅgikah*) whom Pāṇini called *maḍḍuka* which is explained in the *Vasika* as *maḍḍuka vādanaṁ śilpamasy maḍḍukaha* and tabor player *jhārjhara*.

Bharata's *Nāṭyaśāstra* makes scanty reference to the musical instruments. He speaks of two types of *vīṇās* namely *chitra* (seven stringed *vīṇā* played by fingers) and *bipañca vīṇā* (nine stringed) *viṇā* and played by plectrum. However, *Nāṭyaśāstra* lays down the rules regarding playing the drums.

Much can be known about the musical instruments from the Jaina and the Buddhist literature. The *Rayāpaseṇīya* in fact enlists sixty musical instruments known to the Jains.

The people of the Buddhist period were the ardent lovers of music. The musical instruments known to them were many and varied. The master musicians (*gandhabbā*) like Guttila, Musila and Sagga lived in that period. Among the musical instruments (*turīyāṇi*) *vīṇā* was most popular. The *sapta tantrī vīṇā* mentioned in the *Nāṭya-śāstra* goes well in comparison to the one mentioned in the Guttila Jataka.

The Tamil literature gives ample information about the musical instruments known to them. The oldest Draviḍian term for 'instruments' as found in Saṅgam literature—is *karuvi*. The *Śilappadikāram* gives a long list of drums that were in use. Flute was the most popular wind instrument and the *Śilappadikāram* speaks of five kinds of flutes classified on the basis of their material like bamboo, sandal wood, bronze and ebony. Apparently, in the time of the *Śilappadikāram vīṇā* and flute had highest recognition among the musical instruments.

The *Śukranītisāra* refers to Gandharvaveda, the science of music by which one can know of the various voices *e.g.*, udātta *anudātta* produced by the musical instruments and the throat together with the beats of tune.

The musical instruments referred by Kālidāsa in his *kāvyas* give us a fair idea of the musical instruments prevailed in the Vākāṭaka-Gupta period. The musical instruments like *tūryā - vādya, vallaki, alōdaya, vīṇā, vēṇu, vaṁśakriya, puṣkara, muraja, dundubhi, ghanta* and *jalaja* were all known to his period. But he seemed to have a special linking for lute *vīṇā* and tabor (*muraja*).

In Sūdraka's *Mṛchchakaṭikā, saptatantrīvīṇā* is often alluded to in the play. Later text *Mānasāra* also makes scanty references to the musical instruments. The terms like *vaṁśa, karuṇa-vīṇā* and *vīṇā* are referred to.

Bāṇa in his *Harṣacarita* informs that *pāṭahkāla nāndi paṭah* and conches were sounded in the early mornings to announce the day break. In the *Kādambarī*, Bāṇa informs how the musical instruments of various kinds were played at the time of kings' bath and the statement of his is interestingly corroborated in the words of Yuan-Chwang. Yuan Chwang refers to sounding drums and blowing horns, playing on flutes and harps.

The classification of the musical instruments in general had been many. Sachs classifies the instruments into idiophones, membranophones, aerophones and chordophones. But the earliest Indian classification and that which followed traditionally was that of Bharata. His *Nāṭyāśāstra* gives four groups of instruments namely (i) *taṭa* (stringed), (ii) *Ānaddha* or *avanaddha* (percussion), (iii) *Susīra* (wind) and (iv) *ghana* (solid). Some have recognised only three categories : *tata, vitata* and *tata-vitata*. Nārada gives three classes, charma (leather), *tantrika* (stringed and *ghana* (solid). Interestingly, in Jain literature musical instruments are classified under four heads, namely, *tata* (stringed), *vitata* or *ānaddha* (percussion) *ghana* (concussion) and *susīra* (wind).

In the Saṅgam literature (2nd to 6th century A.D.) five types were recognised, *tōrkaruvi, tuḷaikkaruvi, naraṁpukkaruvi, mītattru-karuvi* and *kanchakkaruvi*. This classification is parallel in detail to the old Sanskrit classification—*avanaddha, susīra, tata, gātra* and *ghana*. It is, however, the classification of the musical instruments of Bharata remained the same through the centuries except for some minor alterations in the names. for instance, *ānaddha* is substituted for *avanaddha*; similarly, the word *vitata* is also used instead of *avanaddha*. While studying the musical instruments in Indian art, the traditional classification of musical instruments by Bharata has been followed.

The study of the sculptures of Sanchi, Barhūt, Amarāvati, Gandhāra, Nāgārjunakoṇḍa, Mathura and the painting of Ajanta, following the traditional classification of Bharatamuni have revealed variety of musical instruments, category wise, known through the ages.

Broadly, the stringed instruments chordophones (*tata*) as gleaned from the sculptures and murals comprise (a) bow-shaped or hard-shaped *vīṇā* (b) the guitar type (c) the straight board *vīṇā* (d) *lyra* (e) *Sambuca* of which some are indigenous while a few of them betray foreign influence.

The bow-shaped or hard-shaped *vīṇā* was evolved on the principle of bow and resonator and may be regarded as the forerunner of all musical instruments in the world. These are the most interesting instruments of the Ancient Near East, thanks to their elaborate structure, decoration, variety and subsequent diffusion both westwards into the Mediterranean countries and eastward into Asia. Their depictions in the early Indian art are prolific. It occurs in the reliefs of Sanchi, Barhūt, Pitalkhora, Pawaya, Amarāvati, Nāgārjunakoṇḍa, Goli, Mathura, Gandhāra and in the paintings of Ajanta either as a solo instrument or an accompaniment to dancing or song or music party. Interestingly, the *saptatantrī-vīṇā*, *parivādani vīṇā*, *vipañchi vīṇā* cited in Indian literature readily get corroborated in the plastic art. It occurs as early as in the pre-historic paintings of Central Asia. In Ancient Egypt the bow-harp was called *bjn* or *bin* which becomes *vīṇi* in Koptic.

The musical instrument harp has a hoary antiquity. The Sumerian harp is bow-shaped recalling its origin; the musical bow. Beautiful harps, embellished with gold and semi-precious stones were excavated in the Royal cemetry Ur. In Egypt, the harp is the most favoured instrument. It is essentially the Sumerian type, only diversified in the dimensions of the sound box. It is difficult to state where the instrument originated. It is quite likely that the Sumero-Elamite instrument, found at Chogha Misha as early as the fourth millennium and the Egyptian one, which began to appear under the fourth dynasty, had one and the same origin. It is quite possible also that both could have evolved independently from the more primitive musical bow. A type intermediary between the bow and the harp found in Afghanisthan is now preserved in the Museum of Arhus University, Denmark and another at Leningrad. The connection is still obvious between the musical bow and the earliest Egyptian harp, with its arched neck comparising the entire length of the instrument and penetrating at the base into the half-ovoid sounding box, which resembles the ground resonator attached to the ethnographic musical bow. In the middle kingdom, the harps are covered with abundant decoration. In the new kingdom enormous instruments have as many as eighteen strings and are played standing. A second type is portable its neck ends in a fine sculptured head and the curve of the arch is deeply concave. The third category is even lighter and is called 'shoulder harp'. However, the second type that appears on the Bismya vase is held horizontally. This horizontal type of harp was taken over by the Babylonians either without change or with the arch or bow replaced by a support struck at an angle into the forepart of the sounding box. This angular horizontal harp was known in Iran contemporaneously with the Sumerian period in Mesopotamia. Later, it is commonly depicted on Assyrian and Elamite reliefs. In its bow shape type it spread widely both eastwards, to India, Burma, and Java and Westwards to Minoan crete, ancient Greece and Rome (Pompeii), but in the west it remained rare. Its presence in black Africa is due to the commercial relations of that continent with Indonesia in the Middle Ages.

In India, the harp is the most favoured instrument. In the early Indian art as seen at Sanchi, Barhūt, Amarāvati, Gandhāra, Nāgārjunakoṇḍa, Mathura and in the murals of Ajanta, the harp teams with representations. It continues in the 4th-5th centuries A.D.

and occurs on the *vīṇā-vādana*, coin type of Samudragupta. It wanes thereafter probably giving place to the guitar type which becomes very popular from 6th century A.D. onwards.

But one noteworthy feature of the harp type *vīṇā* is that as early as in the first cent. A.D. it appears in the frescoes in the Samarkand and on a frieze slab from Airatem in Uzebekistan. Later, it travels to South-East Asia and still survives in Burma by the name Saun and among the Afghan tribes on the north western frontiers of the sub-continent.

The guitar type of *vīṇā* occurs sparsely or scantily in the sculptures of Sanchi, Barhut, early sculptures of Amarāvati and Gandhāra. But it gains popularity and almost replaces the harp type at Nāgārjunakoṇḍa and in later sculptures of Amarāvati. It is significantly absent at Mathura probably due to the non-adoption of the same in that region. However, it becomes abundantly profuse by 6th century A.D. onwards as seen at Ajanta and in subsequent periods. It appears in the pala sculptures and in the paintings in a cave at Ellora.

It is interesting to note that the guitar type of *vīṇā* is akin to the modern *Chikara* and *Rabas* which are still used in the north and north-western India. *Chikara* even to this day is a tribal instrument of Rajasthan, Madhya Pradesh and Uttar Pradesh. It is generally believed that the Indian Rabab originated in the Middle East and was played in India first of all, by Tansen of Akbar's court.

Dr. Raghavan finds a close similarity in *Kachhapi*, with the guitar. But K.V. Ramachandra does not agree with this but finds its survival in Java. According to him, the guitar has close similarity to the *citra* from which the modern sitar is derived. But this guitar as interpreted by Coomaraswamy, is more like a mandolin which has its survival in Travancore *dundubhi*. This mandolin resembles very much the Japanese *biwa* and is much less represented in the reliefs-either replacing the harp or used together with it.

However, guitar's origin is obscure, but certainly not Sumerian despite two representations. Iran is possibility because many lutes are represented on terracottas or cylinder-seals from Susa. The Babylonian documents show two types of lute. The lute entered Egypt only in the fifteenth century. Somewhat later it was in favour with the Hittites. It was, however, introduced to India through Greeks, Scythians as is evident from the plastic representations.

The *vīṇā* with oblong board and played by a bow at Ajanta can be identified as the *Rāvaṇāstra* or the *Rāvaṇa hasta vīṇā* of the *Bharata Kośa*. It is interesting to note that an instrument called *Rāvaṇāhatta* is currently in use in Rajasthan. In all probability, this could have been the survival of the *Rāvaṇāstra* or *Rāvaṇastra-vīṇā*. In cylone similar instrument but in primitive shape is being played in the present days with a bow called *vīṇāvati*.

The Ajanta example could have been the precursor of the modern *sāraṅgi* invented by Amir Khusru in the 13th cent. A.D. This could have had its origin in the ancient *Sāraṅgivīṇā*.

The *ekatantrī vīṇā* represented in Ajanta paintings has literary citations and still survives in the name of *ekadaṇḍa* or *ekadaṇḍi* in South India, *ekatārī* in Mahārāshtra and *ekatāra* in Bengal.

The straight board *vīṇā* portrayed at Nāgārjunakoṇḍa betrays the incipient form of the modern *tamburā* and thus may well have been the harbinger of *tamburā*. This modern instrument *tamburā* might have been brought from Middle East countries in Mohammadan period. Interestingly, similar instrument was in use among Egyptians and Abyssinians from remote times.

The *lyra* depicted in the Gandhāra sculptures was introduced to the Gandhāranese during the Hellenistic period this instrument of Greek origin seemed to have been invented by Hermes. As for the real origin of the lyre, one can seek it in Sumerian period. The shape of the Sumerian lyre is reminiscent of its sacred totemic origin, for the body is that of an animal—a bull or a ram—whose head just out, away from the player. The lyres found in the Royal tombs of Ur are lavishly decorated in gold and lapis-lazuli. From the beginning of the second millennium onwards Babylonia preserves the Sumerian tradition of great lyres standing on the ground—as can be seen on the Larsa sherd in the Baghdad Museum and the Ishali plaque in the Oriental Institute, Chicago—but the animal shape has become rare. A Hittite vase from Inandyk in the Ankara Museum reveals the enormous lyres being played by two musicians simultaneously. The lyre with an oblique cross-bar as with the silver lyre from Ur with a standing stage survives until 6th cent. B.C. Again, Babylonia gives a smaller rounded instrument (lyre) held either vertically or horizontally and being played with a small almond-shaped plectrum as seen in the example of Louvre. In all probability, lyre was west Semitic in origin since the small horizontal lyres are first seen in Egypt in the hands of a Syrian nomad depicted in a Beni Hassan tomb of the twelfth dynasty.

In the first millennium, a fourth shape of small lyre, characterized by an oblique cross-bar and asymmetric, contorted arms, appears with Hittites and Assyrians. It may have originated in prehistoric Palestine. A bronze plaque of Phoenician origin found in Luristan offers this type of instrument, a form never adopted by the Greeks.

In Egypt lyre first appears as mentioned above in the hands of Syrian nomad. It is quite possible, given the political and cultural connection between Hittites and Egypt the lyre, the parallels of which can be seen at Mesopotamia, Babylonia, Inandyk, was brought from Anatolia to the Nila valley. Perhaps under the influence of the Palestinian type, some Syrian lyres were modified.

The Romans adopted *Kithara* from the Greeks & Etruscans. However, the specimen noticed in the Gandhāra sculptures are evidently of Greek origin.

*Sambuca* a triangular-stringed instrument of Greek origin occurs in Gandhāra sculptures and in all probability this instrument was introduced to the Gandhāranese in the Hellenistic period in the 1st cent. A.D. However, one can see the proto type of *Sambuca* in the Babylonian civilization. In the Babylonian example one can clearly see the forerunner of *Sambuca* represented in the Gandhāra sculptures. It is also argued that the Babylonian examples were adopted by the Assyrians and Persians from whence they reached China and Japan. It is interesting to note that in Sassanians 'time this instrument was known as *chang*. A fine example of this instrument datable to 3rd cent. A.D. can be seen on wall mosaic from Bishapur.

Egypt adopted from the 15th century onwards the vertical angular harp from Babylonia. This becomes a type in great favour perhaps owing to the great stability of tuning allowed by the angular structure. As already pointed out, the Sambuca, under discussion, was evidently the introduction of the Greeks who in turn looked to its origin in Babylonian specimen.

Another example of triangular stringed instrument with trigonal frame, presumably wooden and the strings stretched over it occurs at Ajanta. This reveals semblance to *Sambuca* depicted in the Gandhāra sculptures and could as well be its proto-type. It is noteworthy that similar instruments of Ajanta example are illustrated in the Sassanian reliefs at Taq-i-Bustan. It is probable that this instrument has evolved in North-western India and travelled to Persia in the 6th cent. A.D. According to Dhavalikar, it survives even today in the elaborate form of *svaramaṇḍala* which has also roughly trigonal frame but has a number of strings.

The percussion instruments include a large variety of drums varying in their sound and model. The tabular drums like *aṅkya*, *ūrdhva* and *āliṅgya mṛdaṅgas* as classified in *Amarakośa* and in the *kāvyas* or Kālidāsa *muraja, mardala*, kettle drums like *dundubhi*, flat drums like *paṭah* and small hand-drum were all known to the period under review. The *mardala* is typologically midway between more refined *muraja* and noisy *paṭaha*. The *dundubhi* or *nagāra* was generally played in royal processions, in religious ceremonies or in the war fields. It is interesting to note that low kettle drums resembling the Sanchi specimens were available in remote past outside the country. A low kettle drum, dating from the first half of the fourth millennium is perhaps depicted on a seal impression found at Chogha Mish in Elam. The footed-type war drum was also used by the Babylonians. A portable drum carried with a leather throng was known to the Hittites.

The *paṭaha* represented in the plastic art have close resemblance to the modern *ḍaph* of Maharashtra State or *tappeṭa* or *ḍappu* of the Āndhra Pradesh or *tappidi* of the Karnataka State. These *paṭahas* were used on different occasions. The one used in funeral procession was called *preta-paṭaha*. On the war fields the drums like *paṭaha*, *dundubhi* were struck. Another interesting small handdrum depicted in Sanchi and Gandhāra undoubtedly reveals Greek *tympann*. It is noteworthy that similar *tympann* is to be seen on Lekythos vessel of Attic period datable to 430-20 BC. However, the survival of the small handdrum instrument noticed at Sanchi and Gandhāra can be seen in Marfo commonly used by *fakirs* of India.

Of the *susīra* variety, flute, panpipe of single tube, compound pan-pipe, trumpet, conch and whistle occur in the early plastic art. The transverse or horizontal flute seemed to have been favoured most at Sanchi, Amarāvati and in the murals of Ajanta as is evident from their prolific depictions. However, in one example, the Gandhāra sculptures portray a horizontal flute of Greek origin. According to the Greek legend, Athens invented the horizontal flute. Earlier to this a duct flute or an *oboe* was in use as can be known from the reliefs of the old kingdom. Finally, cross or transverse flute appeared in the Ptolemaic period. It is noteworthy that the flute is totally absent in the lithic representations of Barhūt, Nāgārjunakoṇḍa and Mathura. However, it does not mean that the people of these regions did not know the flute or its usage. In fact, flute or lute were the most favoured as can be known from the contemporary literature.

The pan-pipe of single tube that gets represented at Gandhāra is evidently the Greek *Syrinx*. The *Syrinx* was a folk instrument in Greece from Homeric times. It consisted invariably of a single tube, either open at both ends or closed at one end. The air was blown against the edge of upper openings. Two or tubes of varying lengths were usually combined to form compound pan-pipe. Such a composite flute (double-pan-pipe) gets its solitary representation in Sanchi relief. Apparently, the introduction of double-pan-pipe in Sanchi could have been the act of the Greeks. The Greeks painted pottery betray at several places compound pan-pipes. On three vessels, amphora, cup and bell krater of Attic period the composite pan-pipe can be seen painted. The Chinese too used a very similar instrument from very early period.

Interestingly, a Hittite relief at Louvre offers an instrument with six equal pipes. This instrument common in Greece, was introduced from there into Egypt in the Greeco-Roman period. An instrument called fistula also known as "Stopped pipes" and similar to Greek *Syrinx* was used in Germany in Roman period (51 B.C. to 4th-5th centuries A.D.) by shepherds and in Pantomimes. The Roman fistulas are too well-known from their frequent depictions.

In India, however, the instrument, pan-pipe (single or composite) does not appear to have been found favour with Indians as it is totally absent in the later period. Yet, surprisingly enough, it is in use in the country, particularly in Punjab, Uttar Pradesh and northern parts of Madhya Pradesh where the cow-boys, especially those belonging to the Ahir community play on it and the instrument is known as *alogoja*.

The trumpets depicted in the Sanchi reliefs which have their sides tapering towards a thin curved mound and broadened out towards the upper end which shaped like a swan's head are apparently Greek *Salpinx* or Roman *tuba*. Somewhat parallel example of the Sanchi specimen occurs at Gandhāra which again is evidently of Greek origin. At Ajanta trumpets occur both in the earlier and later group of Ajanta paintings.

The horns and trumpets have long antiquity. At Mesopotamia a pair of horns are seen depicted on the Chogha Mish seal impression. The Hittites had short trumpets and these may be regarded as ancestors to the Jewish Shofar. The silver and bronze trumpets are to be found in the tomb of Tut-ankhamen. The conches get their portrayal at Sanchi, Barhūt, Amarāvati, Nāgārjunakoṇḍa, Mathura and in the murals of Ajanta. At Barhūt and Amarāvati we get conches with attached mouth piece. That the conches had religious significance can be known from Nāgārjunakoṇḍa Excavations where inscribed conches bearing inscription like *bhagavato Athabhuja Sāmisa* were discovered. Similarly, the discovery of both inscribed and uninscribed conches from the monastic establishment at Salihundam is highly suggestive of their religious functions in the Buddhist *Sanghārāmas*. The excavations of the many early historical sites have yielded conches both from secular and religious establishment thereby indicating the popular use of the wind instrument, conch. In the Epic age conches were largely employed as a war singal. Thus *pāñcajanya* of Krishna, Devadatta of Arjuna, Pauṇḍra of Bhīma and Ananta Vyaya of Yudhiṣthira acquired fame during the epic ages. Even to this day conch has sacred association in India, Tibet, Ceylon, South East Asia and over much of the Far East.

The terracotta bird-figure whistles were among the interesting finds from many early historical sites like Amarāvati, Kondapur, Nāgārjunakoṇḍa *etc*. Sometimes, these hallow terracotta bird whistles are seen filled with small shots to facilitate them to function as rattles also. Such articles were generally toy articles as they are even to this day.

The solid instruments (*ghana*) include clappers, rattles, sliding rattles, bells, cymbals and gong.

Clappers are construed to be those simplest percussion sticks generally held in hand and struck against each other thereby producing sound. Such play as known as *kolāṭṭam* in Telugu and *kolāṭa* in Kanarese. These clappers are played solo or in groups while dancing rhythmically. The sound produced by the clappers would be melodious and in tune with the steppings. The sculptures of Sanchi, Nāgārjunakoṇḍa depict them at several places. In early times in Mesopotamia similar kind of clappers were in vogue for similar purpose. They are either straight or bent like boomerangs. A Sumerian shell plaque discovered at Ur and datable to 2600 B.C. depicts a person striking bent clappers. In Egypt clappers imitated a fore arm in bone or ivory, ending in a sculptured hand. A clapper which has parallel in Egyptian example occurs in the Nāgārjunakoṇḍa sculpture, revealing the scene "Gift of Earth."

Many early historic sites like Amarāvati and Nāgārjunakoṇḍa have yielded terracotta rattles in the form of birds and animals.

Evidently, these toy-rattles could have been the play instruments to the children as they are to this day.

Interestingly, in Mesopotamia and Egypt gourd and 'pie-crust' rattles filled with pebbles or other small hard objects made of clay were available. The Babylonian and Iranian rattles datable to early second millennium B.C. are presently preserved in British Museum, London. Curiously, the earthenware rattles in the form of birds belonging Roman period from Germany offer great similarity to the Indian examples.

Although the early Indian sculptures (save a few examples at Barhūt and Nāgārjunakoṇḍa) do not seem to represent bells, the excavations at early historic sites have yielded many examples of bells and bellclappers. The small bell-clappers discovered at Nāgārjunakoṇḍa could have been used to tie round the neck of the cattles. As they moved, the bell-clappers produced the sound. Many bells in silver or gold or bronze were in use in the late period in Egypt and the Near East. A large Assyrian bell is to be seen still preserved in the Berlin Museum.

Sliding rattles are common finds in historical sites. Interestingly, the excavations at Nāgārjunakoṇḍa yielded such iron-rings or copper rings but archaeologists usually classify these objects as votive rings, brace lets or artefacts with unknown functions. But they can very well besliding rattles.

It is interesting to note that such sliding rattles belonging to late Iron age were discovered among Norwegian finds. These Norwegian rattles probably served as end mountings on waggon and sledge straps in addition to their sound-producing functions. Sliding rattles of iron are even found among material from Finland's late Iron age. The usage of such sliding rattles for waggons was believed to be the sign of high position of the user and even considered as symbols of spiritual and secular power.

As for the solid instruments, cymbals and gong were known to the period. The bigger variety cymbals with broad and flat rim represented at Ajanta reveal close resemblance to *jhānj* which is used even to this day in festivals. Similar cymbals dated 7th cent. A.D. occur at Bhita. Evidently, the *Kamśya tāla* succeeded the *Karatāla*.

At Amarāvati there is a solitary representation of gong. Gongs are generally played to indicate the sunrise particularly in temple premises and festivities. *Harṣacarita* speaks of such *prātah-kāla-nāndi paṭaha*.

Thus, it can be seen while guitar, *Rāvaṇahasta vīṇā, ekatantrī vīṇā*, straight board *vīṇā* among stringed instruments (*chordophones*), *mṛdaṅga, mardala, muraja, dundubhi, paṭaha* among percussion instruments (*membranophones*), flute, trumpet, conches, whistles among wind instruments (*aerophones*) and clappers, rattles, bells, cymbals gongs among solid instruments (*idiophones*) reveal predominant native traits, some of the musical instruments like harp, *lyra, Sambuca*, tympann *Syrinx, Salpinx* or Roman *tuba etc.*, denote unmistakable foreign origin. The advent of these foreign musical instruments are evidently due to the trade contacts that India had with the foreign countries in the early centuries of the Christian era and with the result Greeks, Romans, Persians *etc.*, became responsible in introducing them into India through different regions of the country. Needless to say many musical instruments like *saptatantrī vīṇā, vipañci vīṇā, Rāvaṇāstra vīṇā, ekatantrī vīṇā, mṛdaṅga, muraja mardala, paṭaha, dundubhi, tūriya jalaja kamśyatāla etc.*, which have literary citations interestingly, get impeccable lithographic and mural delineations in early Indian plastic art. It is equally fascinating to know many of these musical instruments of the period under study have their survivals even to this day in many parts of the country.

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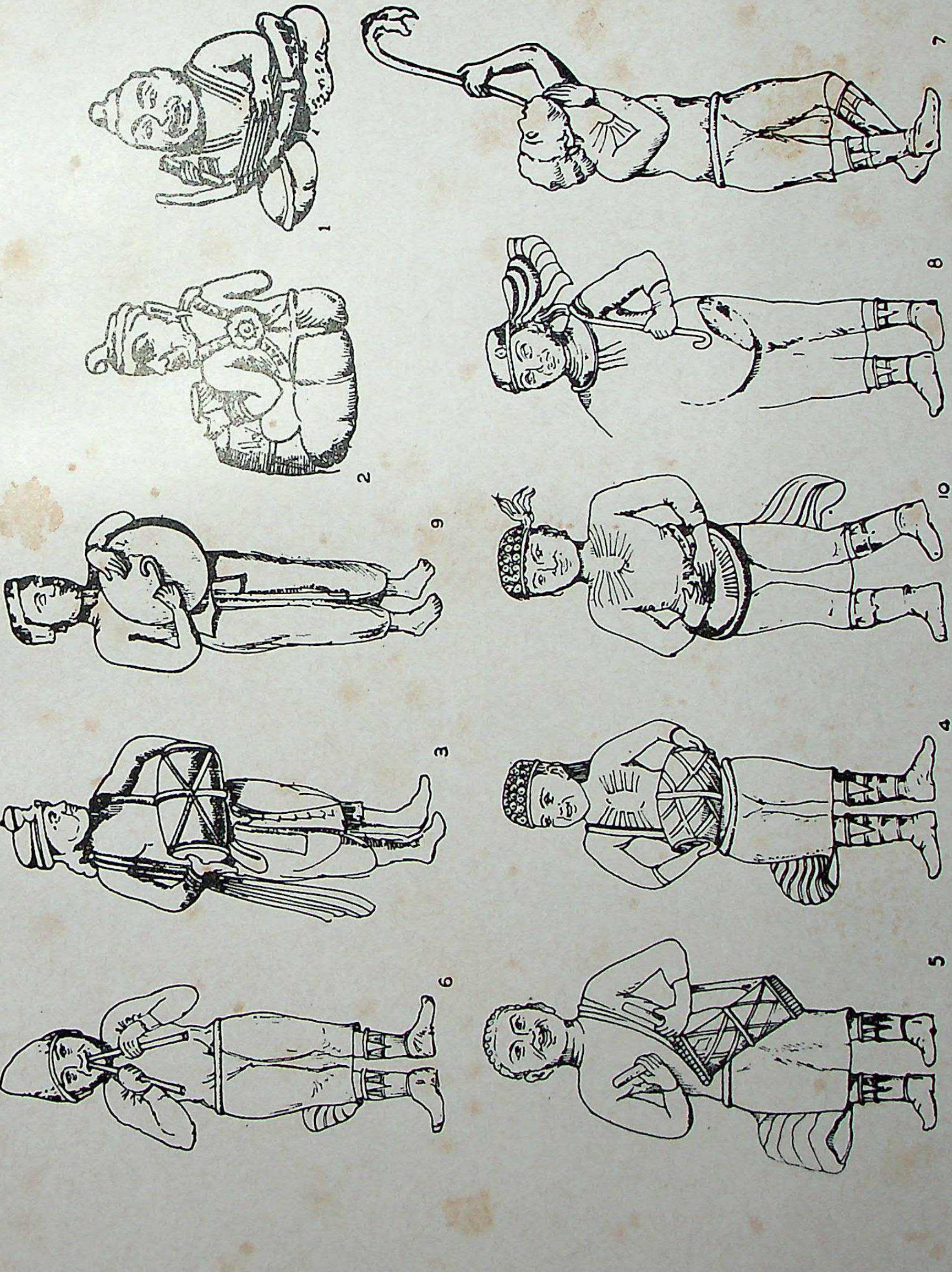
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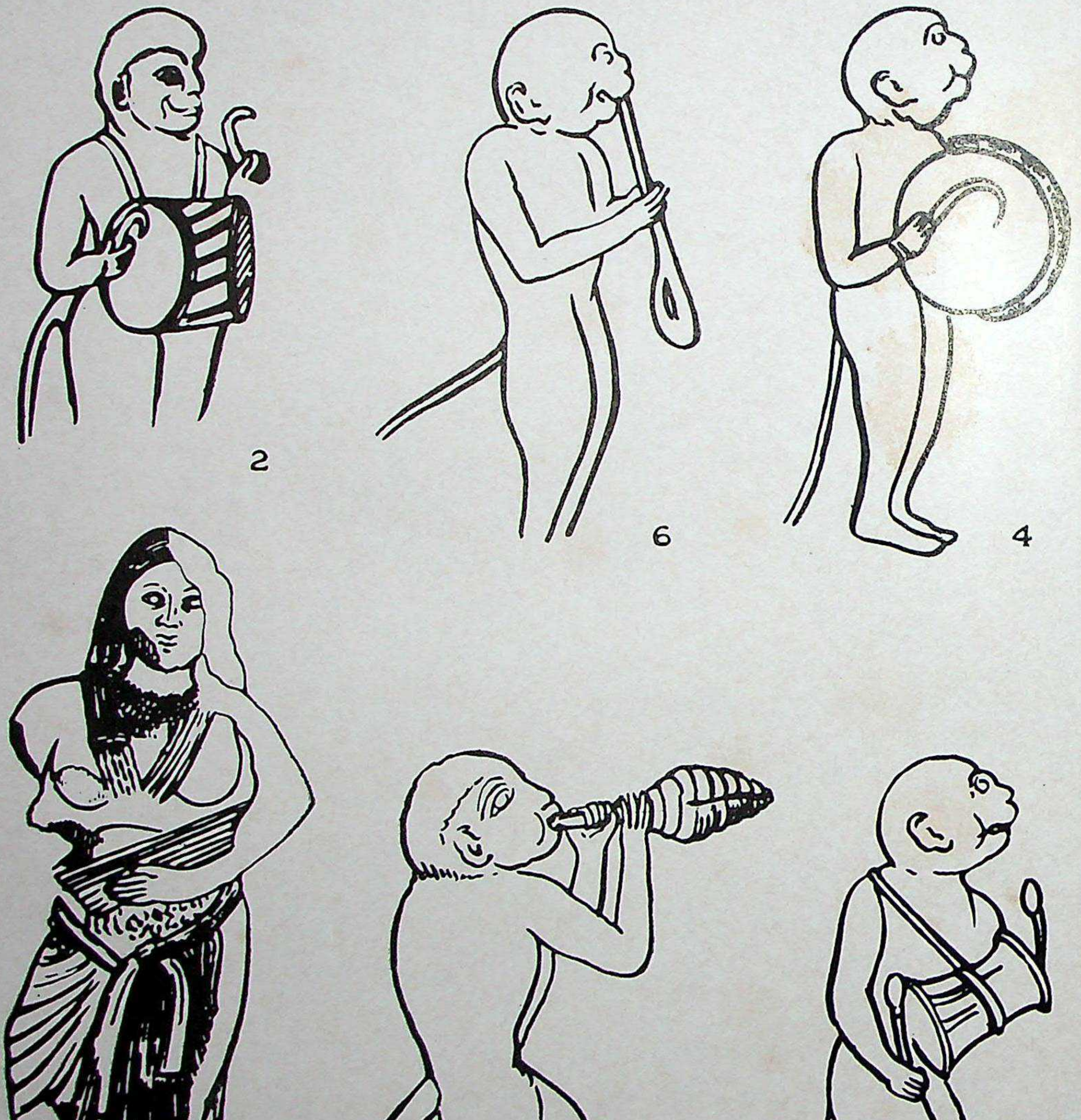

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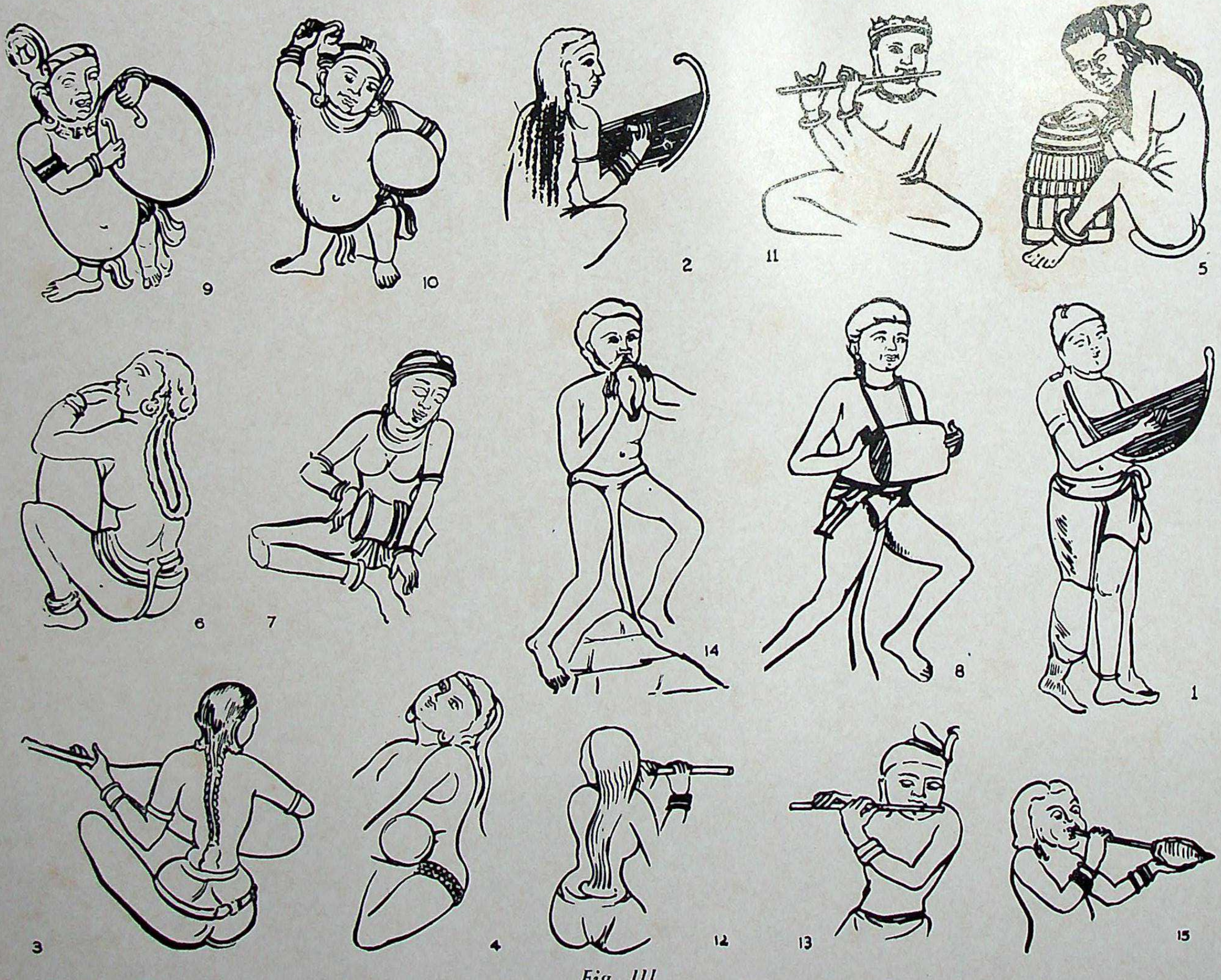
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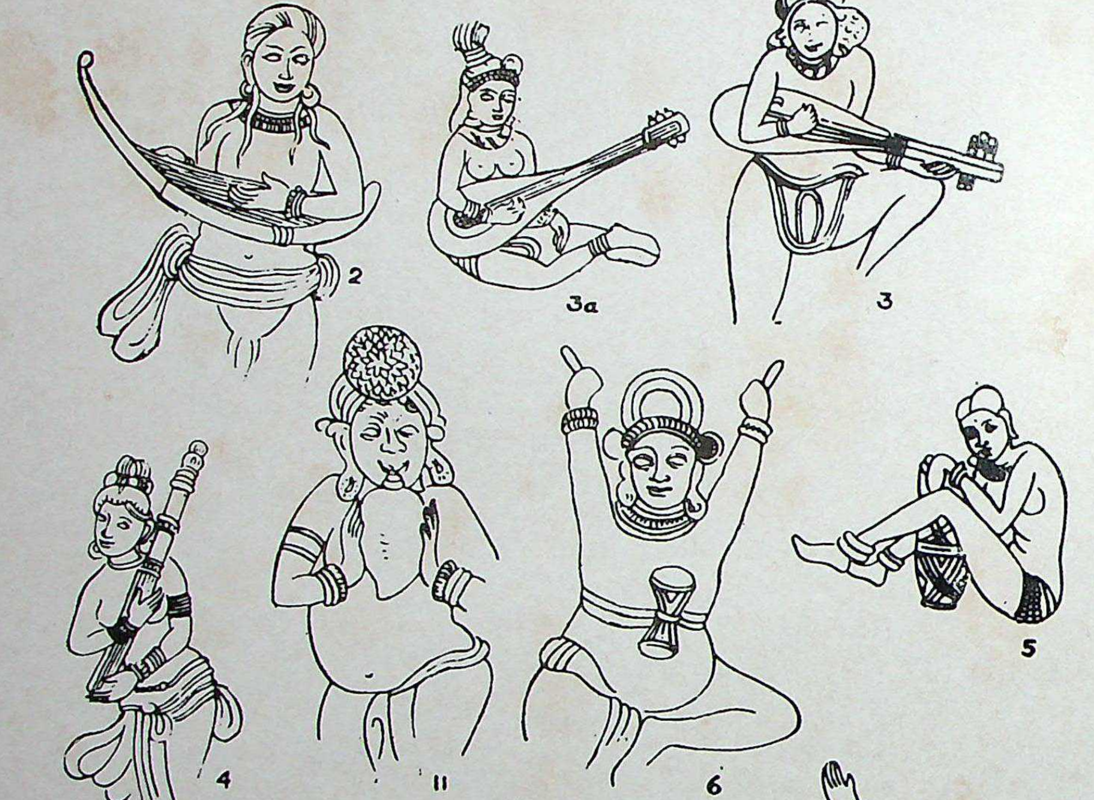
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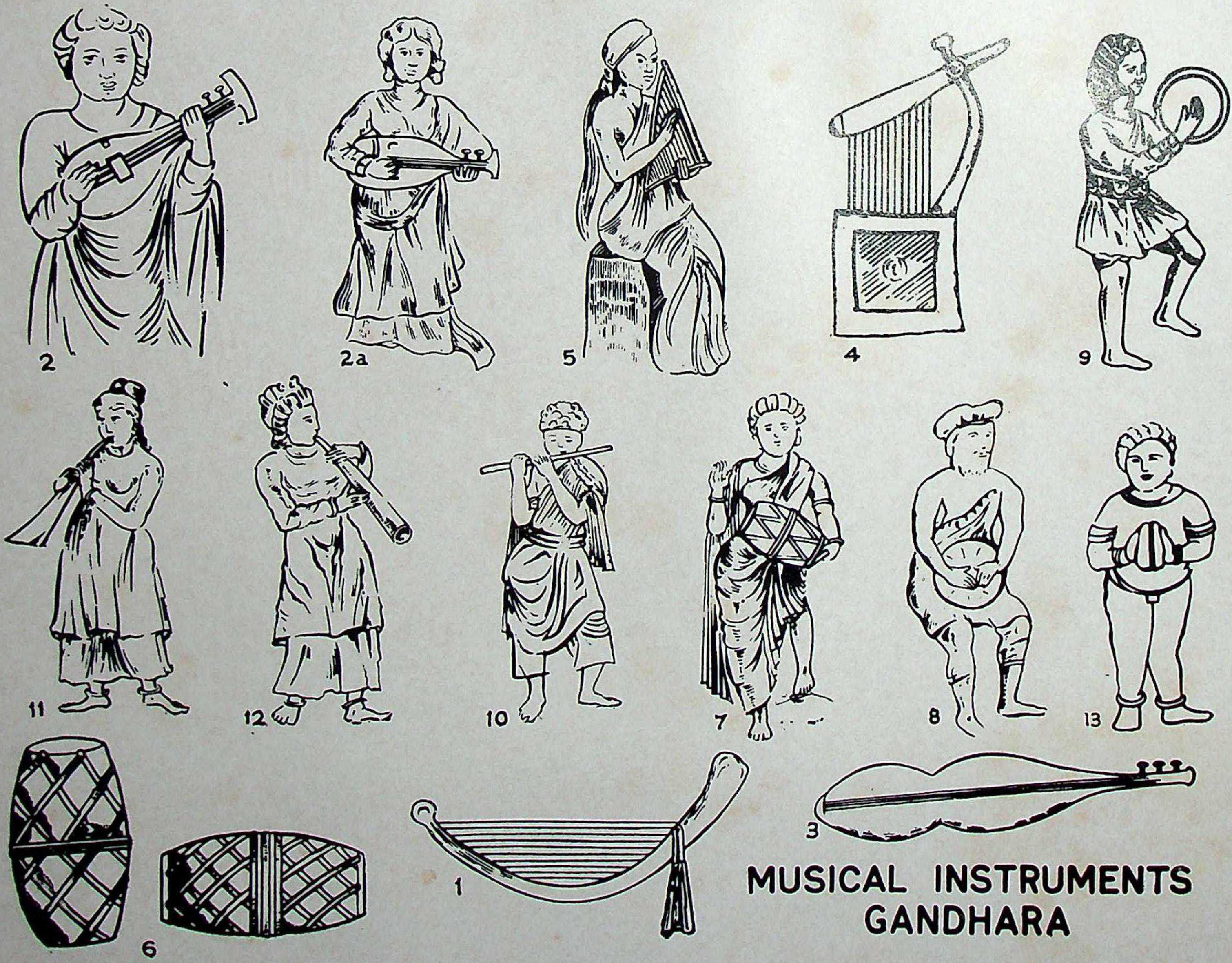
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MUSICAL INSTRUMENTS
GANDHARA

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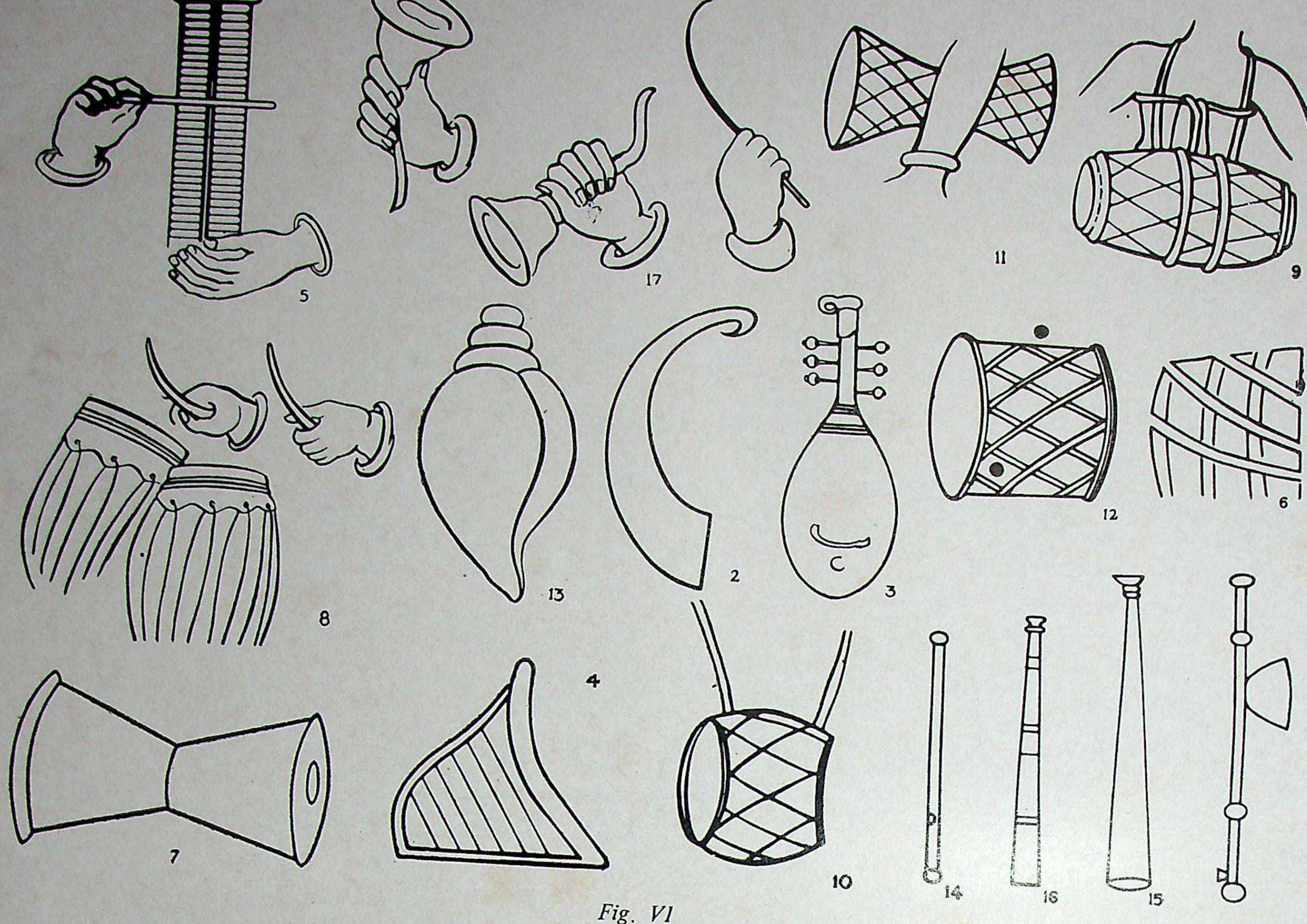
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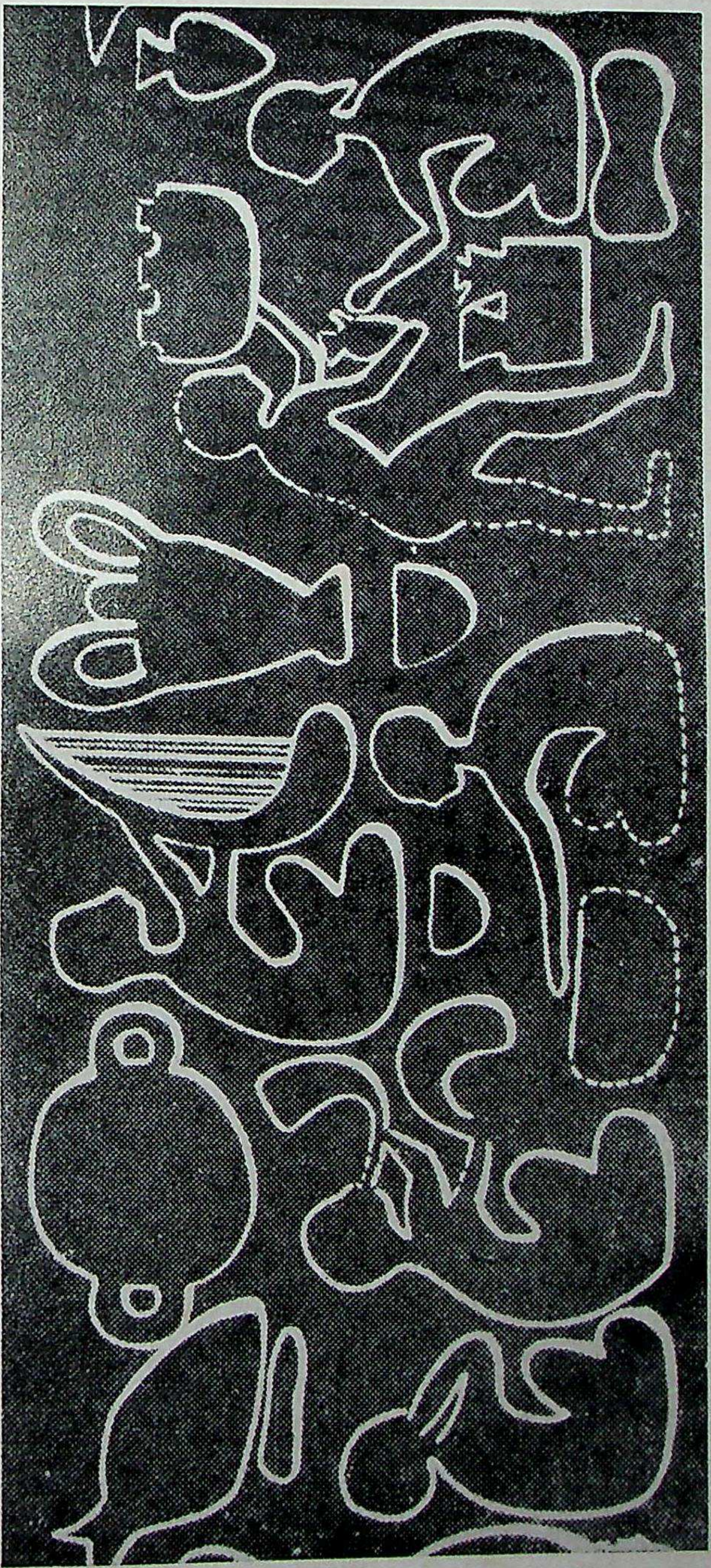

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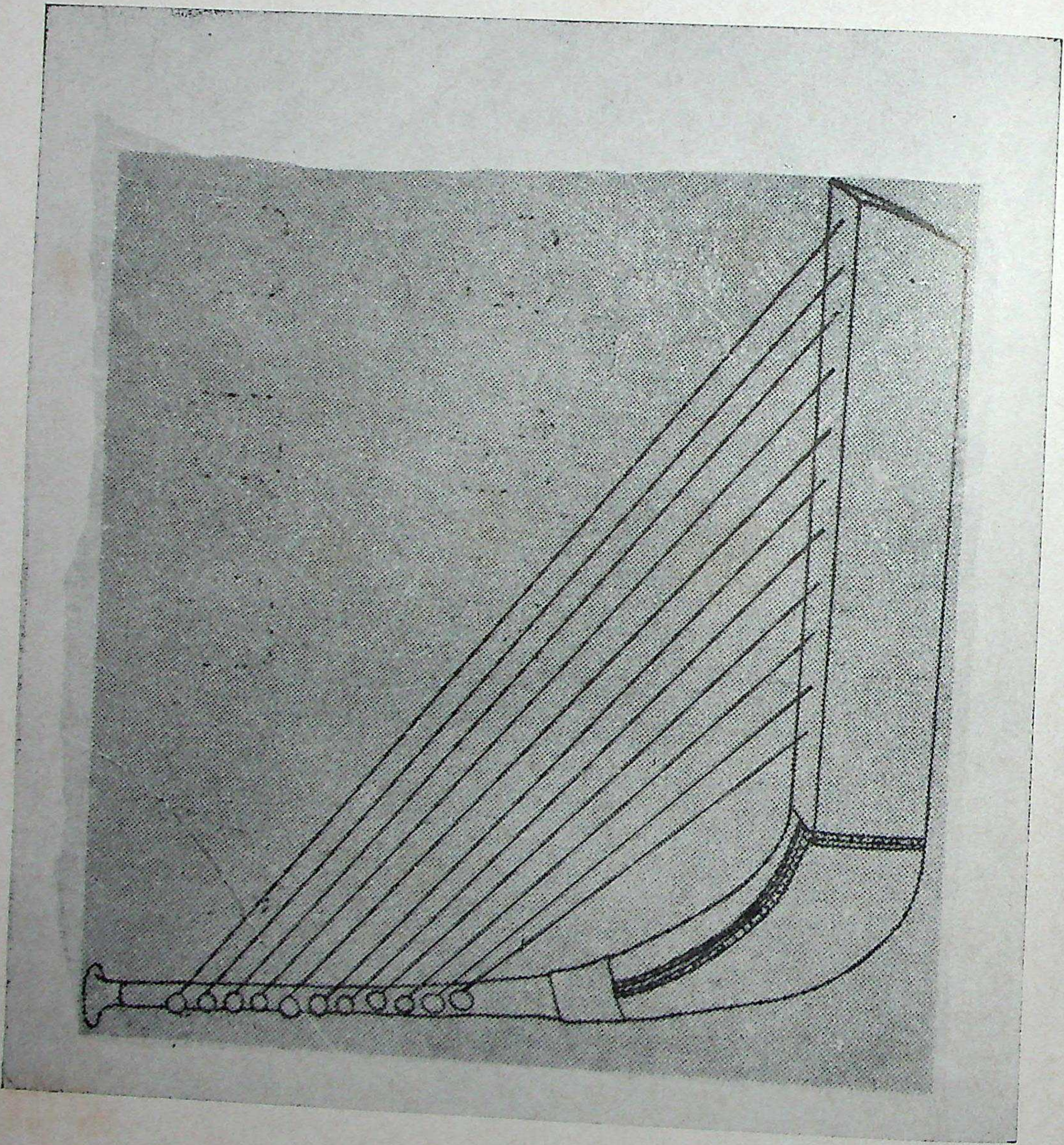

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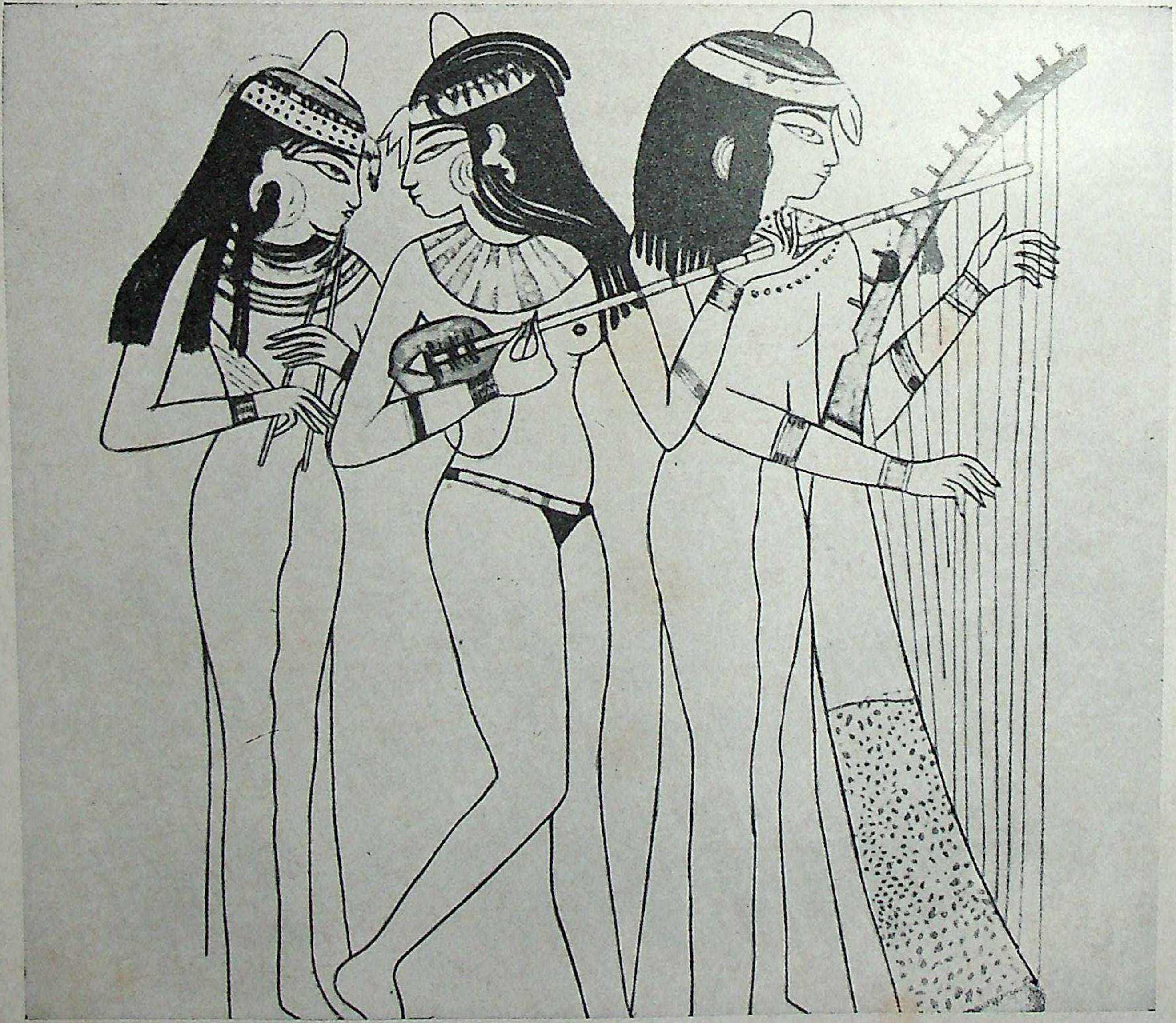

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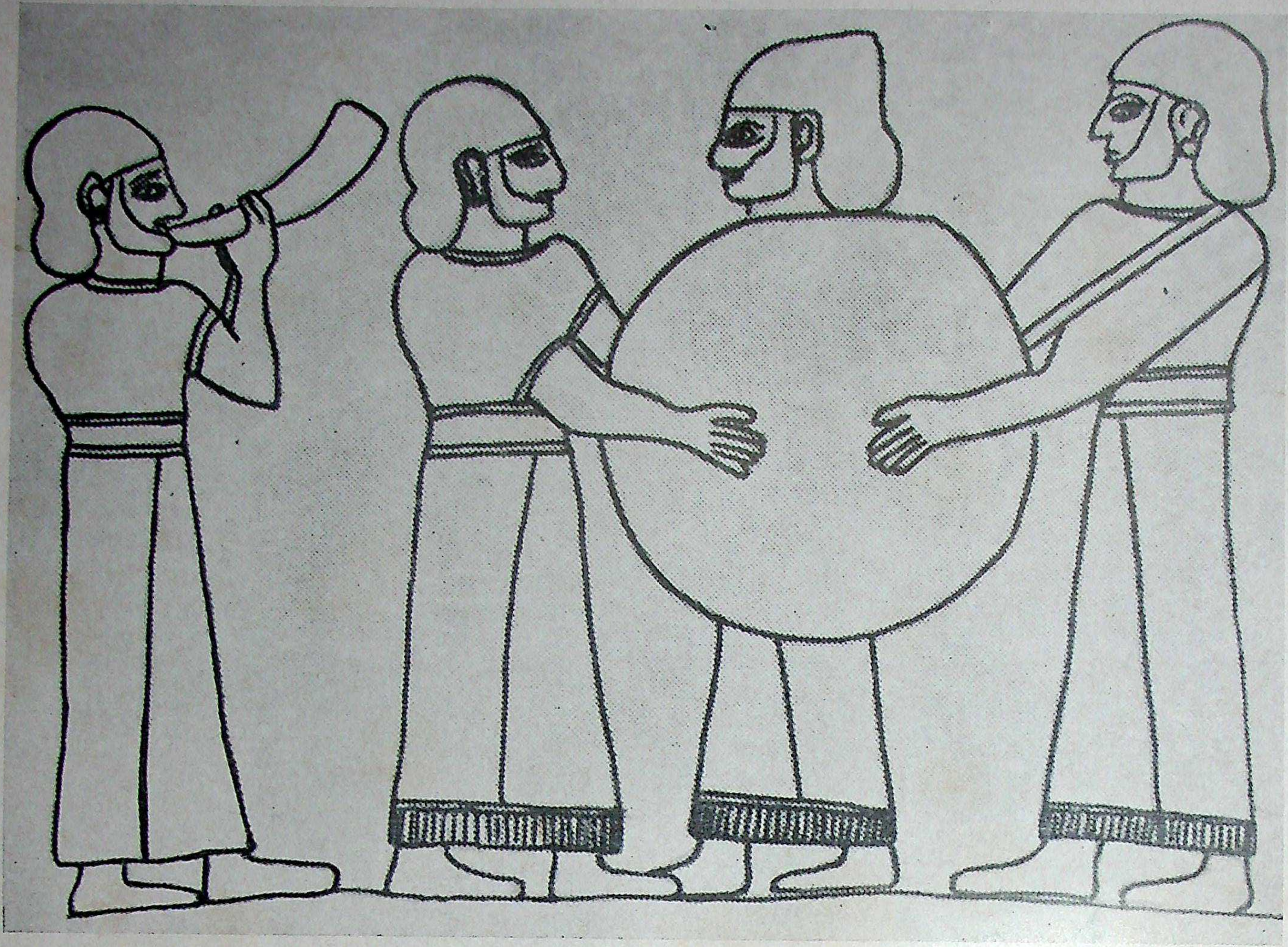

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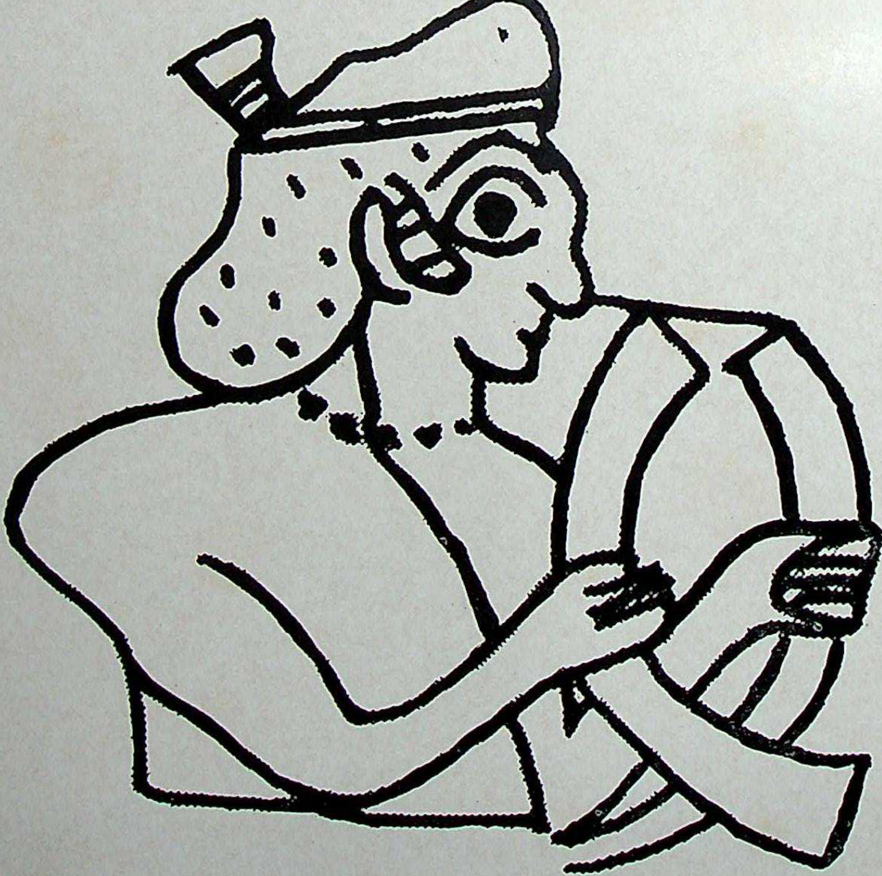

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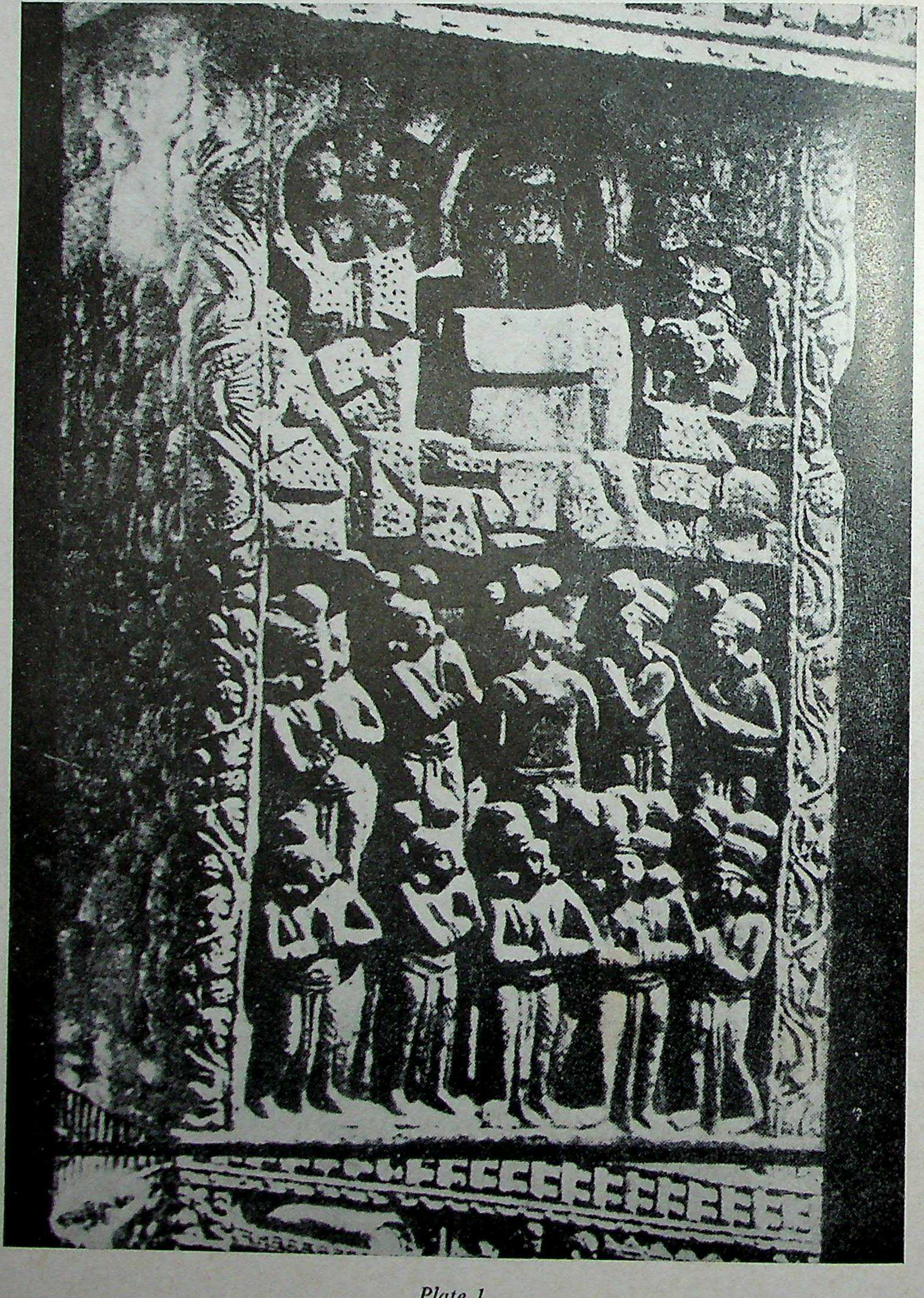

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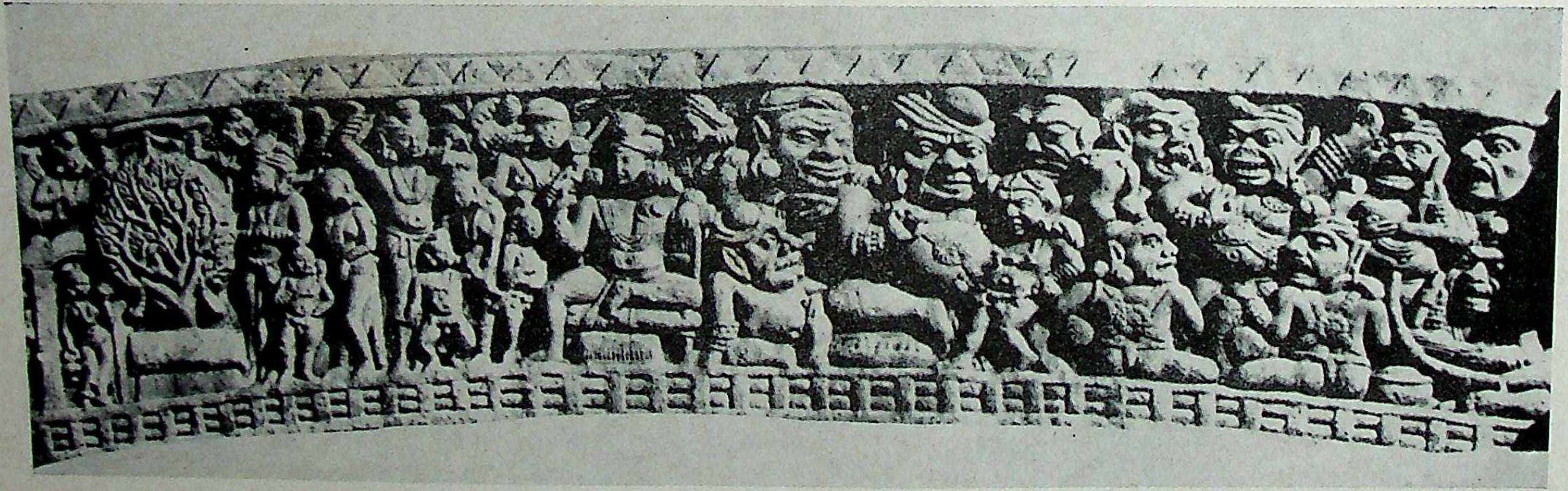

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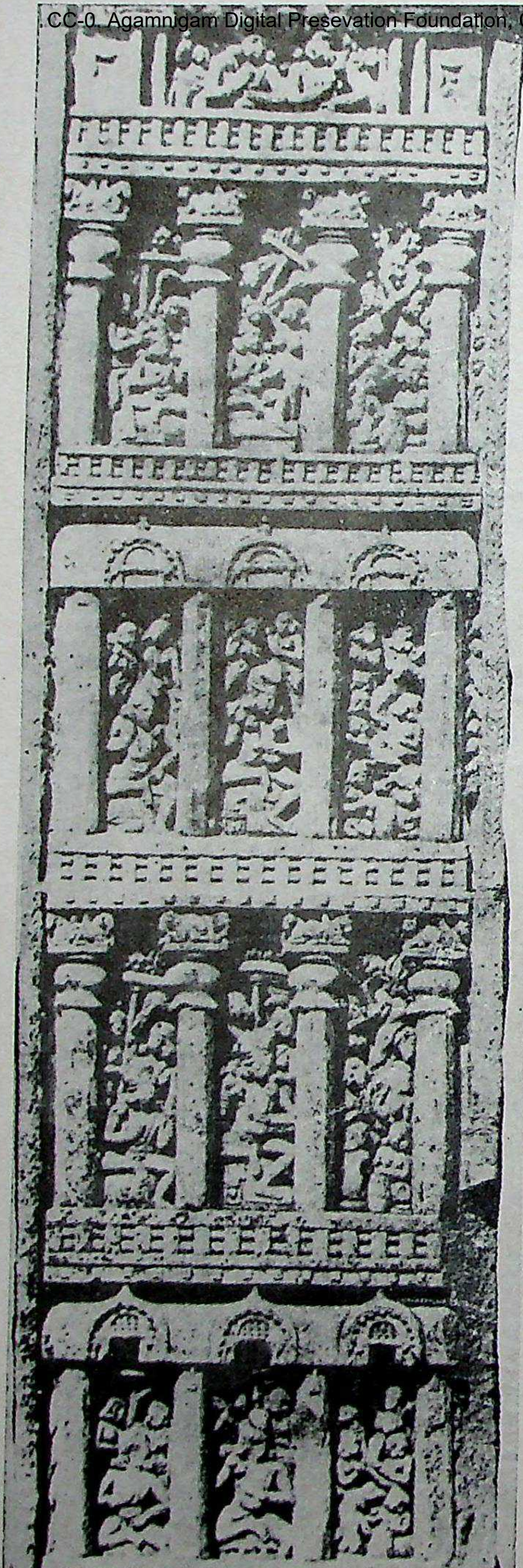

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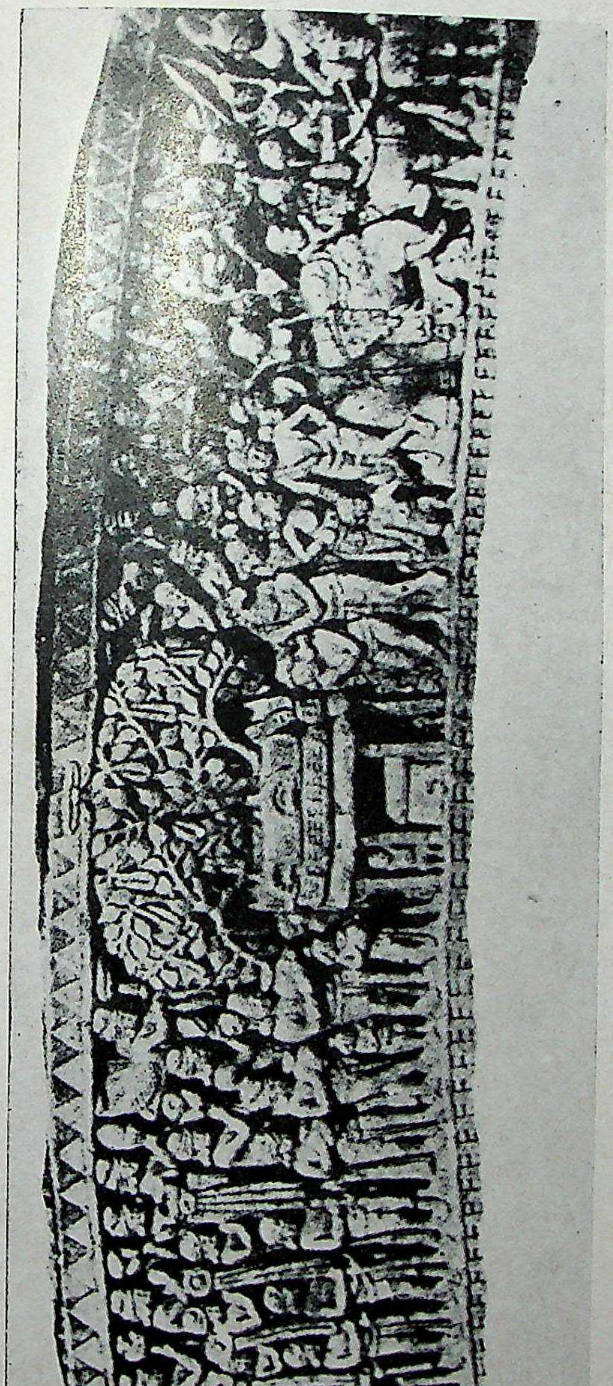

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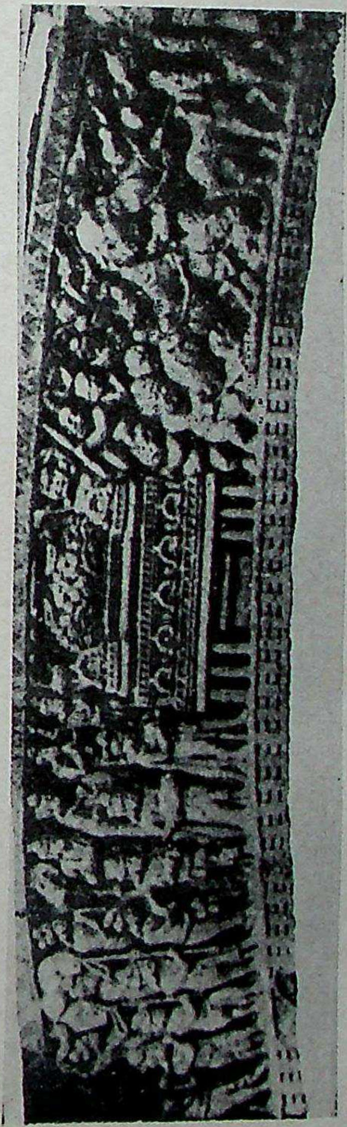

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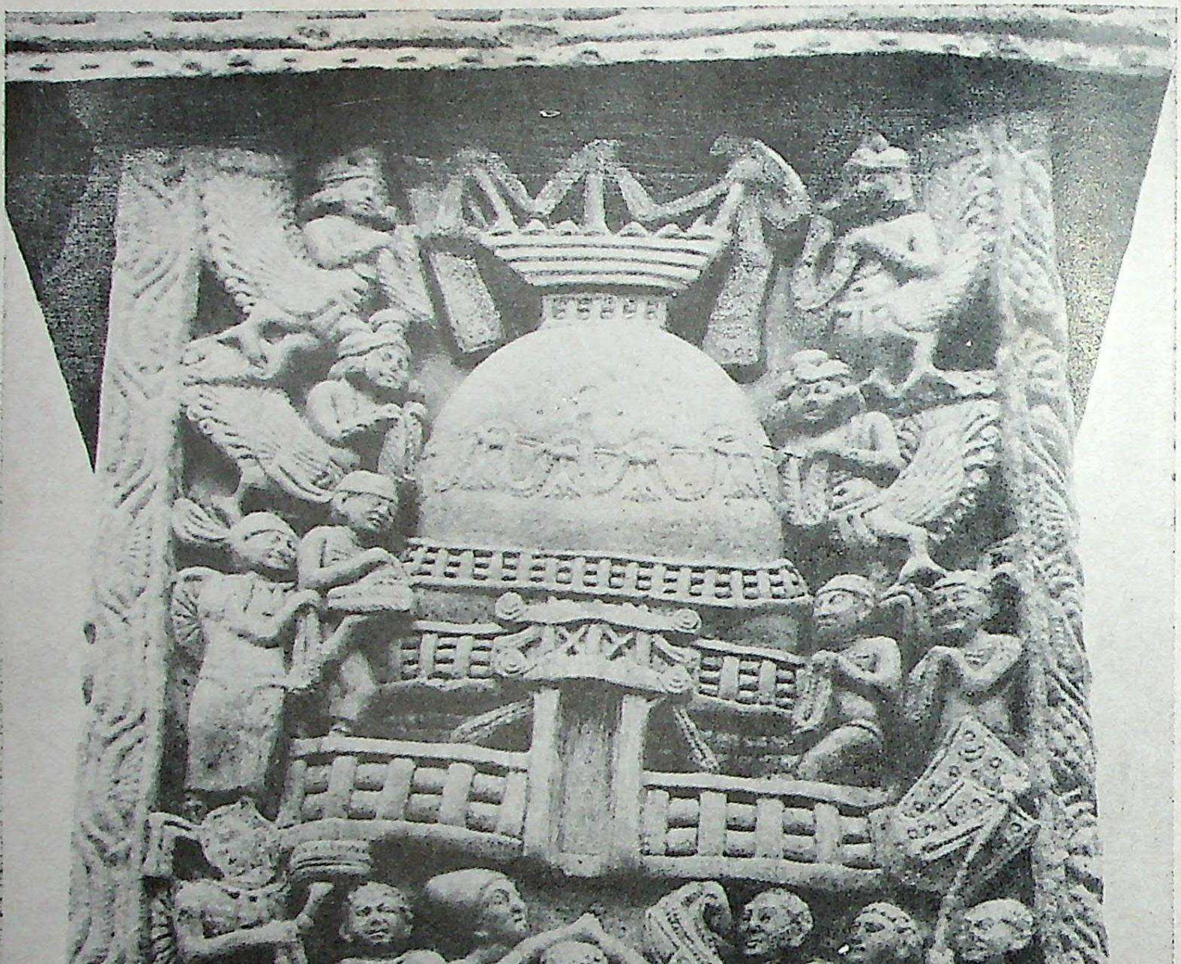

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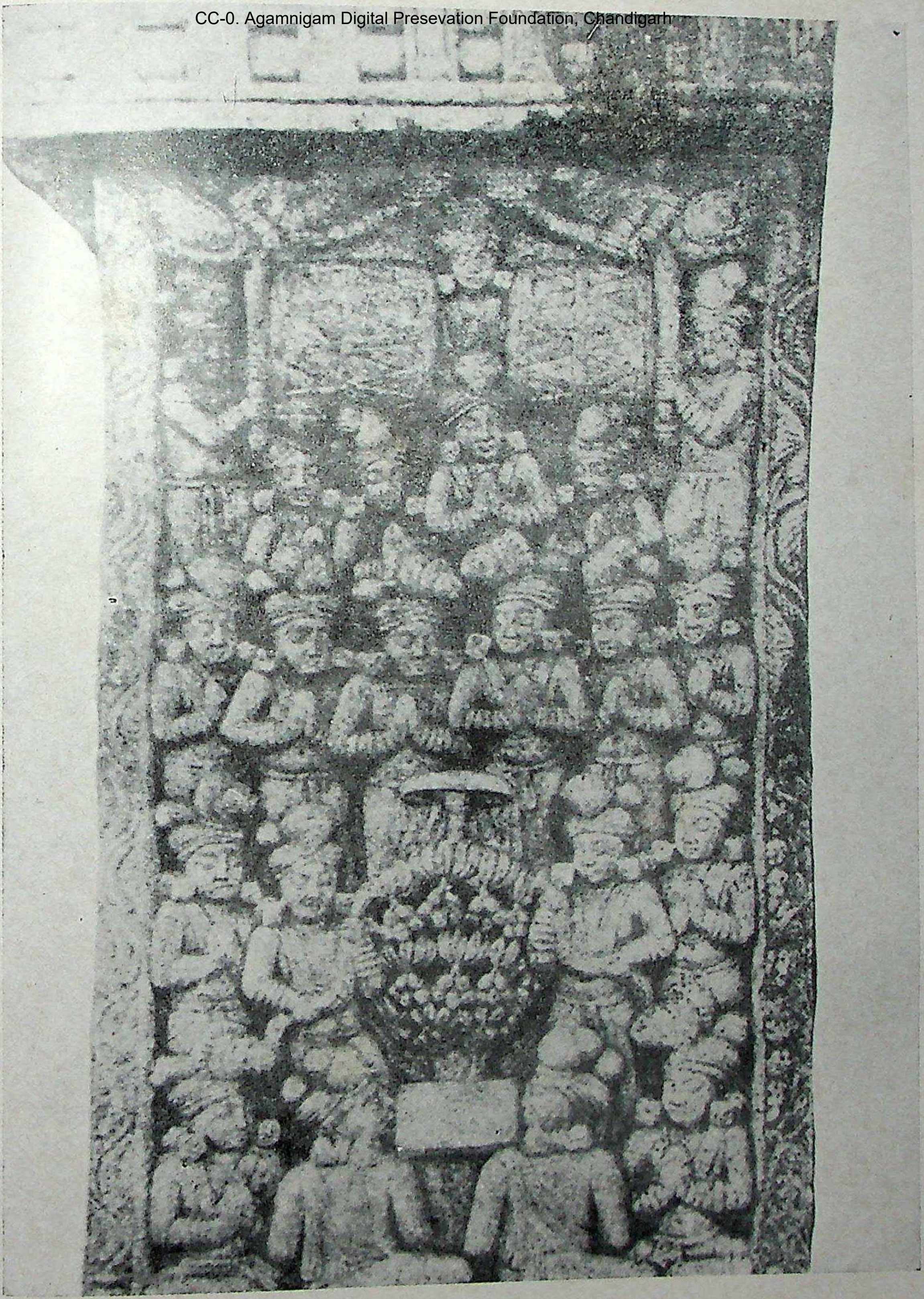

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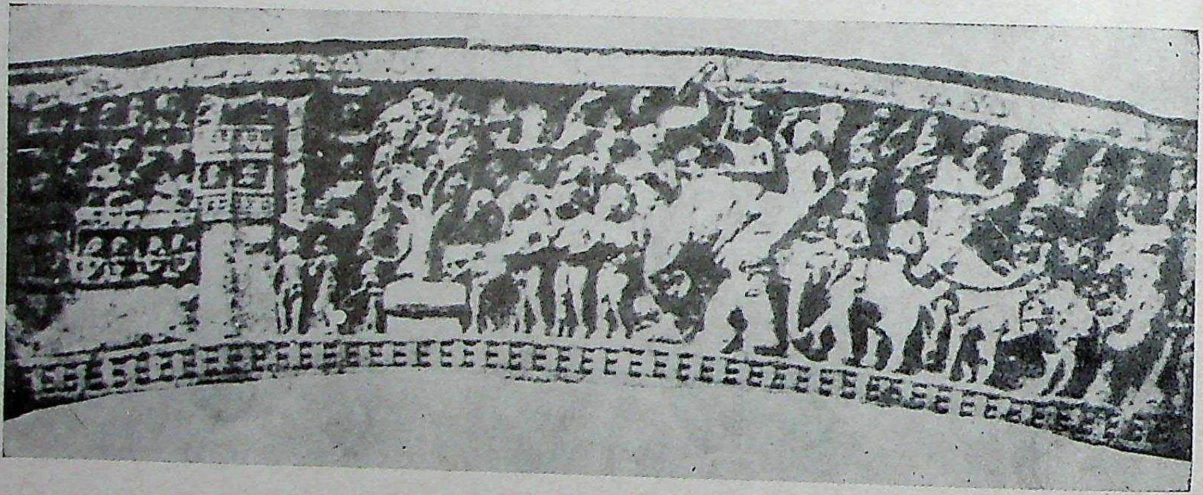

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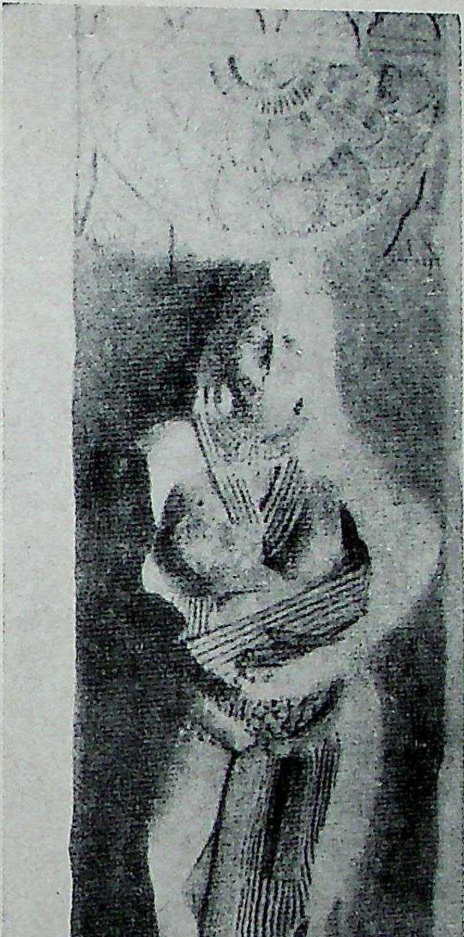

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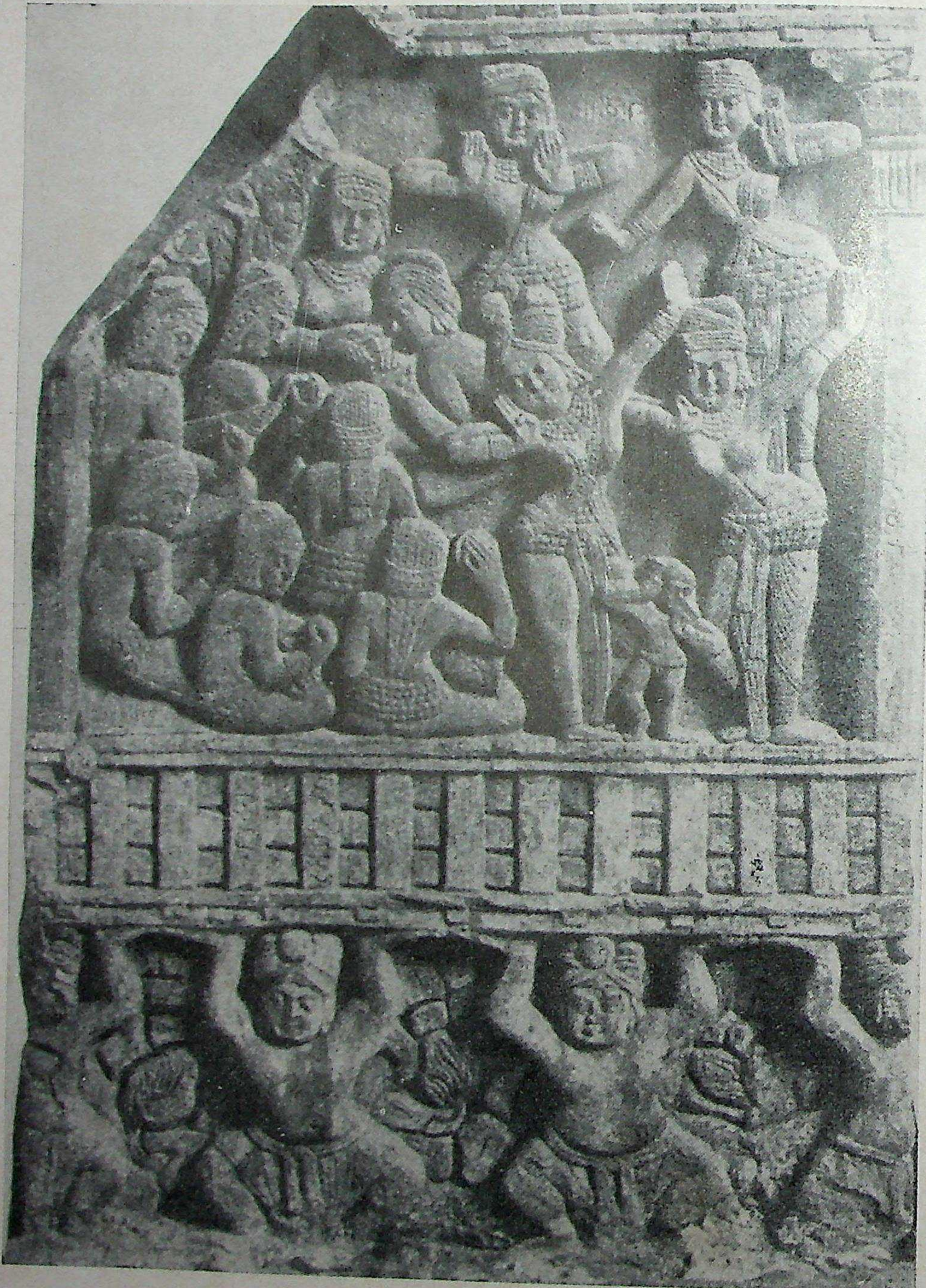

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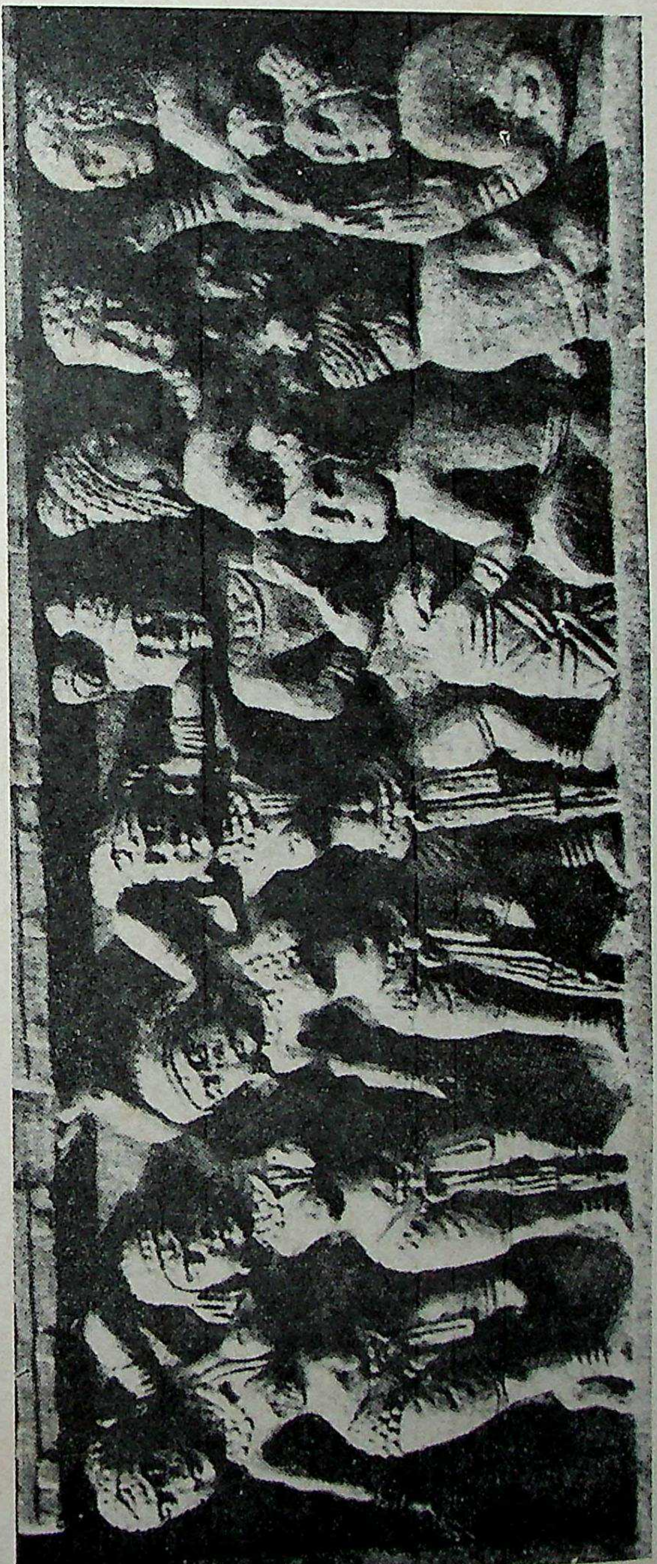

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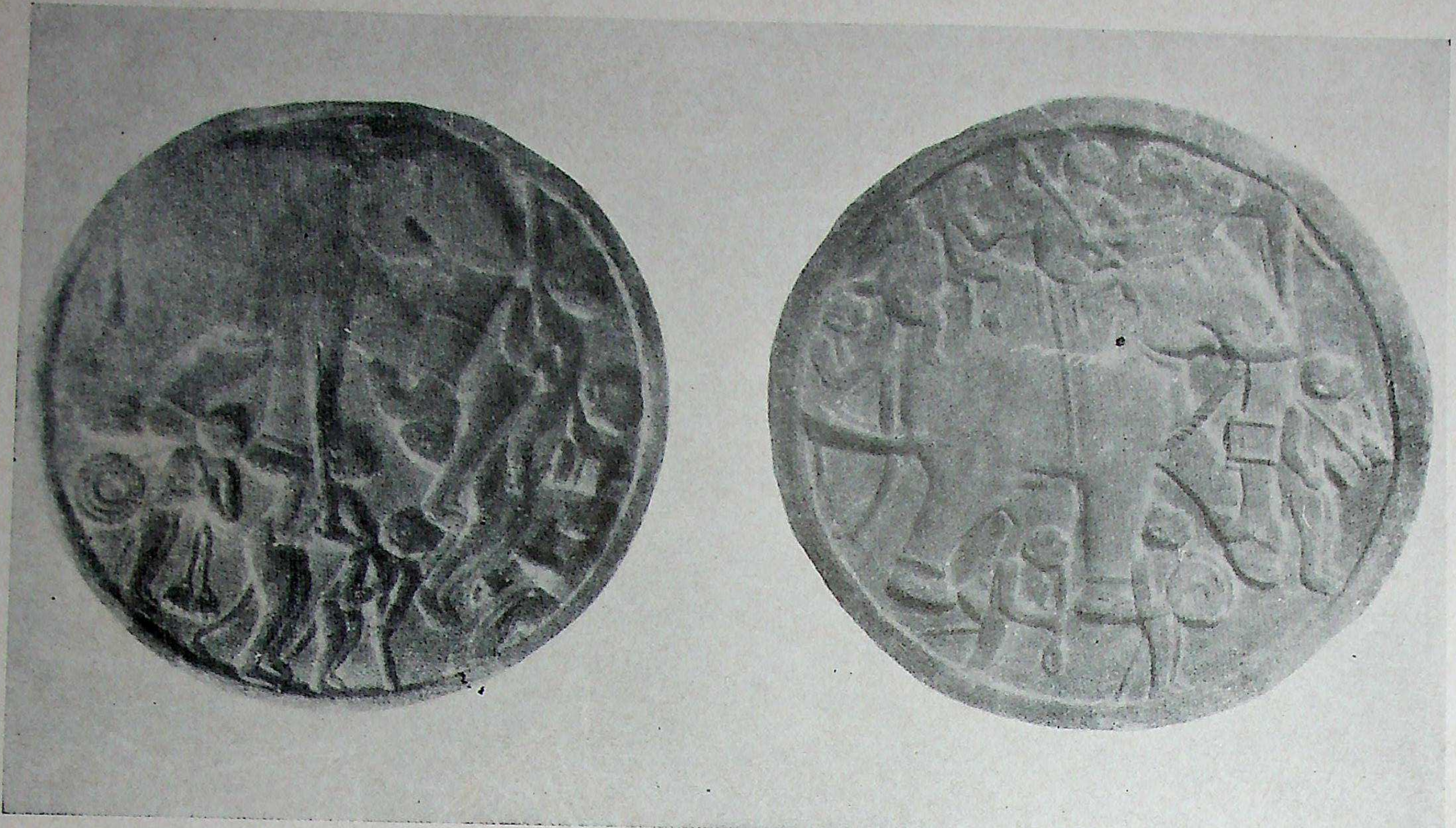

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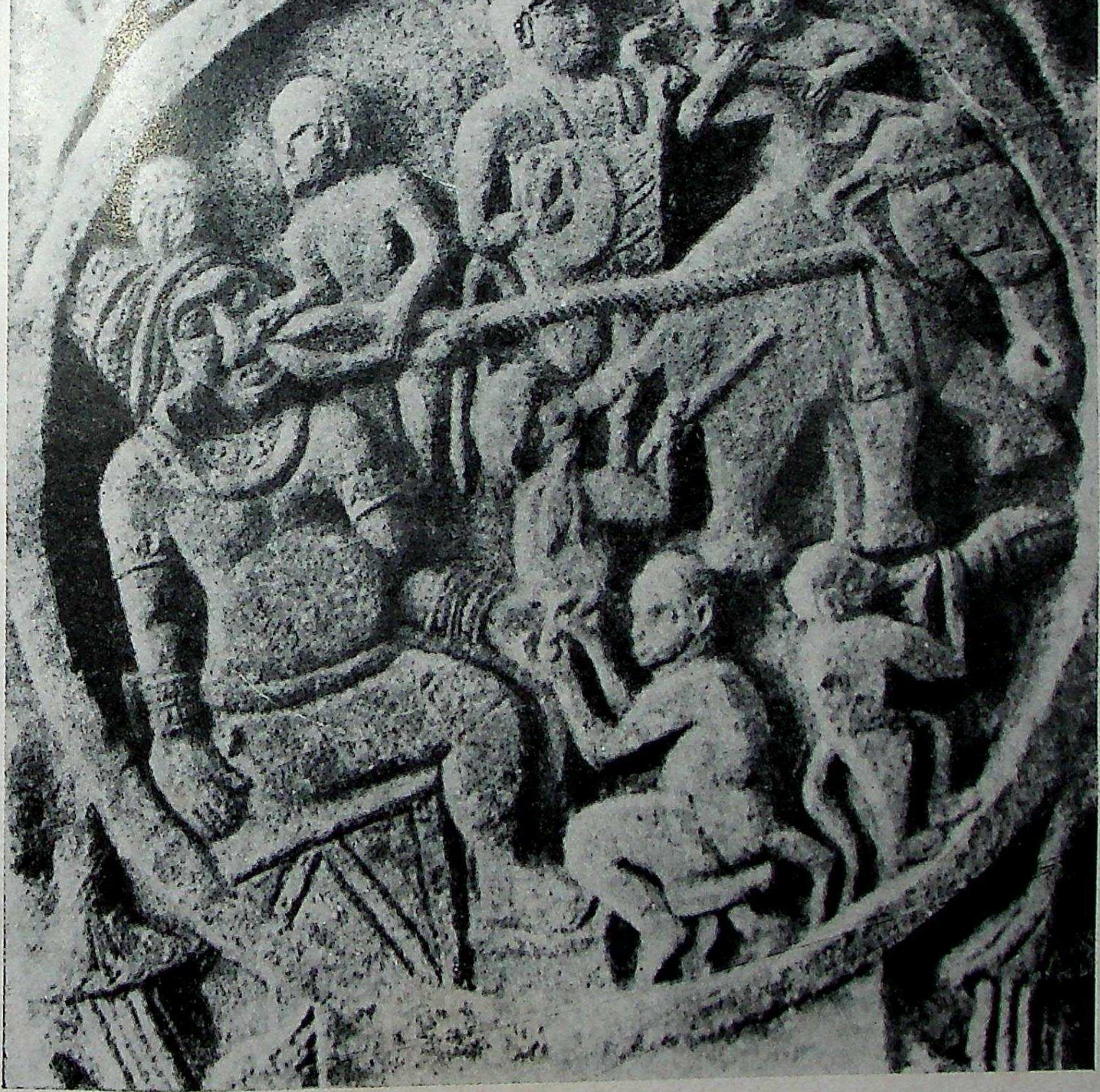

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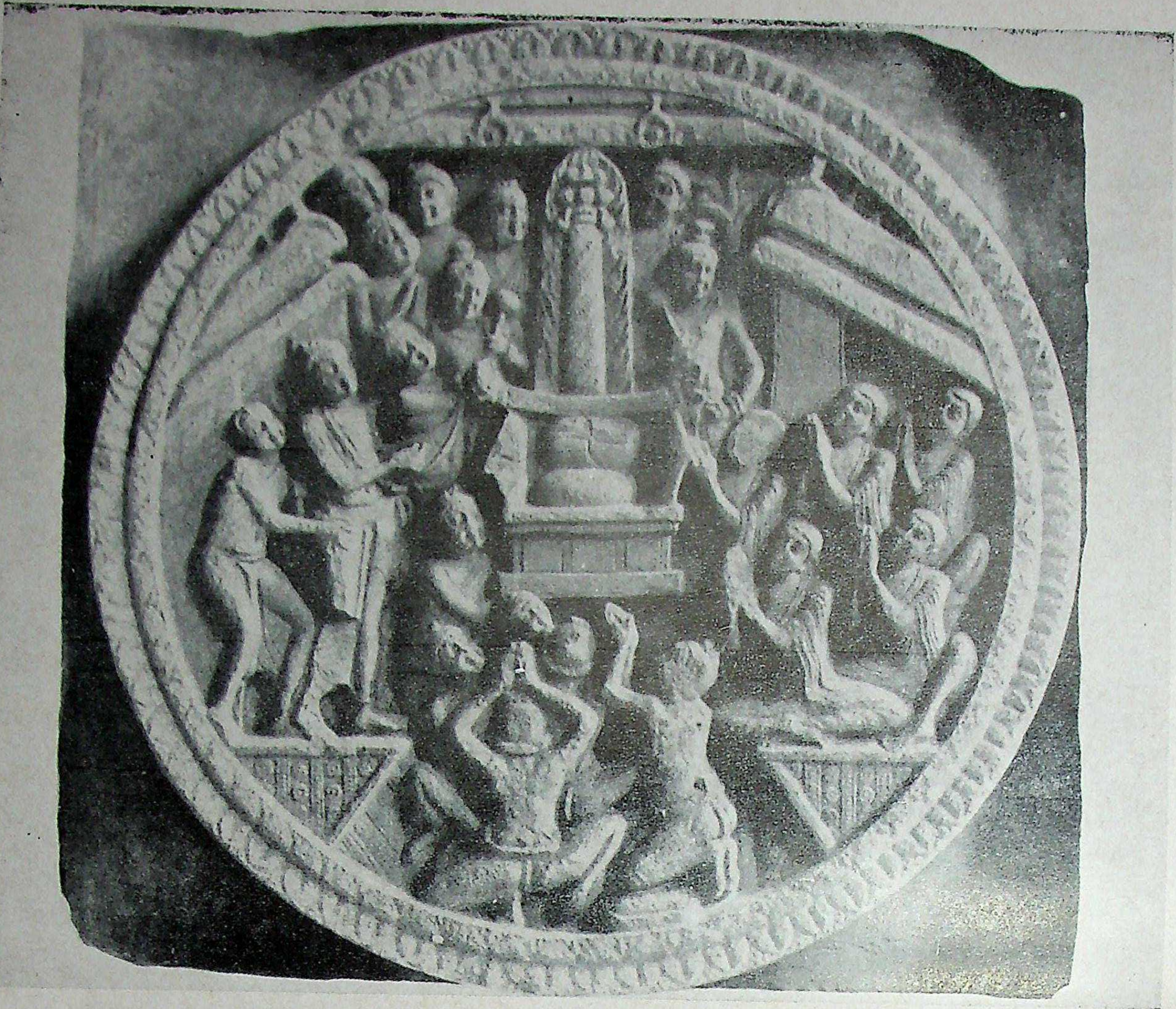

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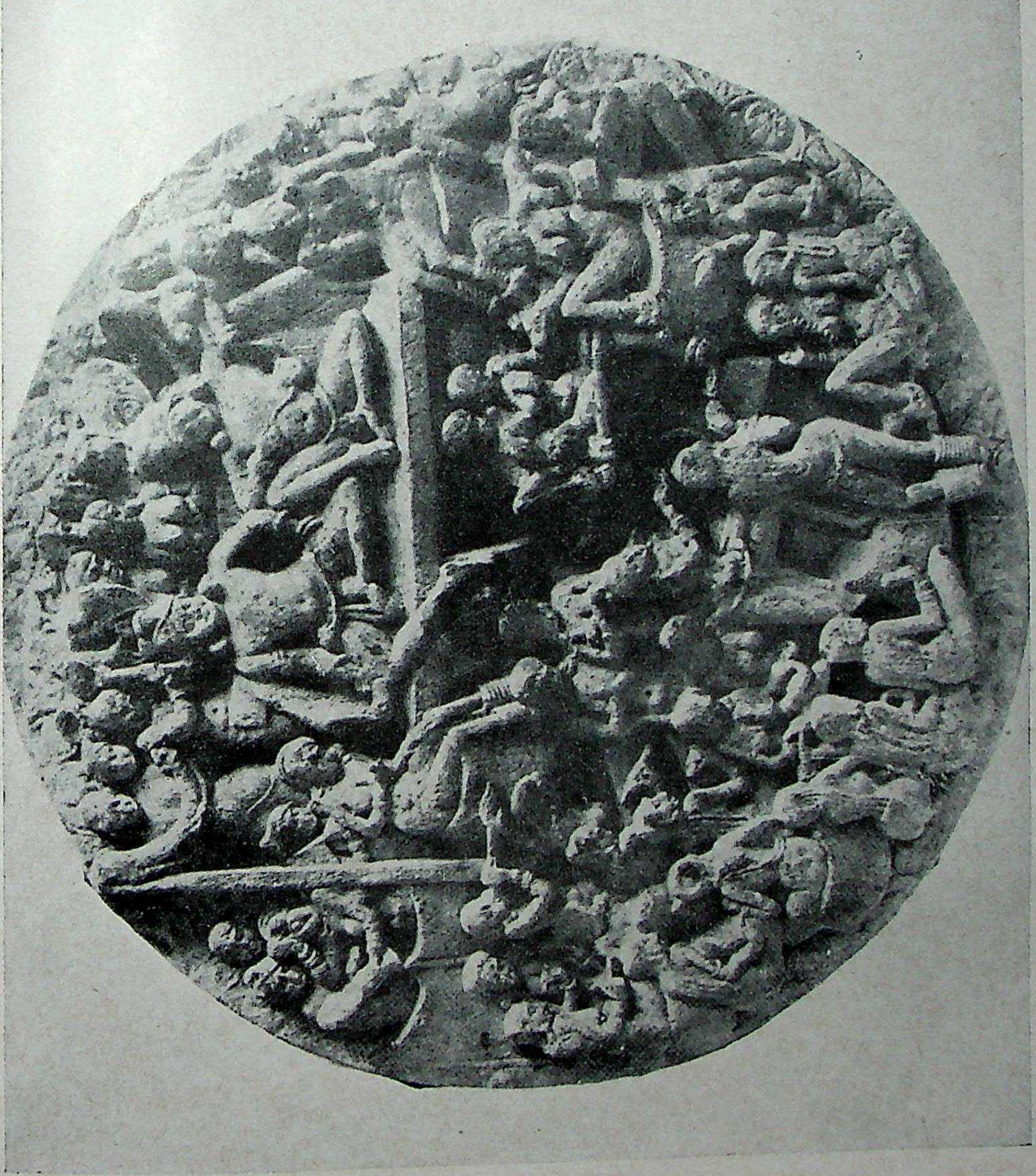
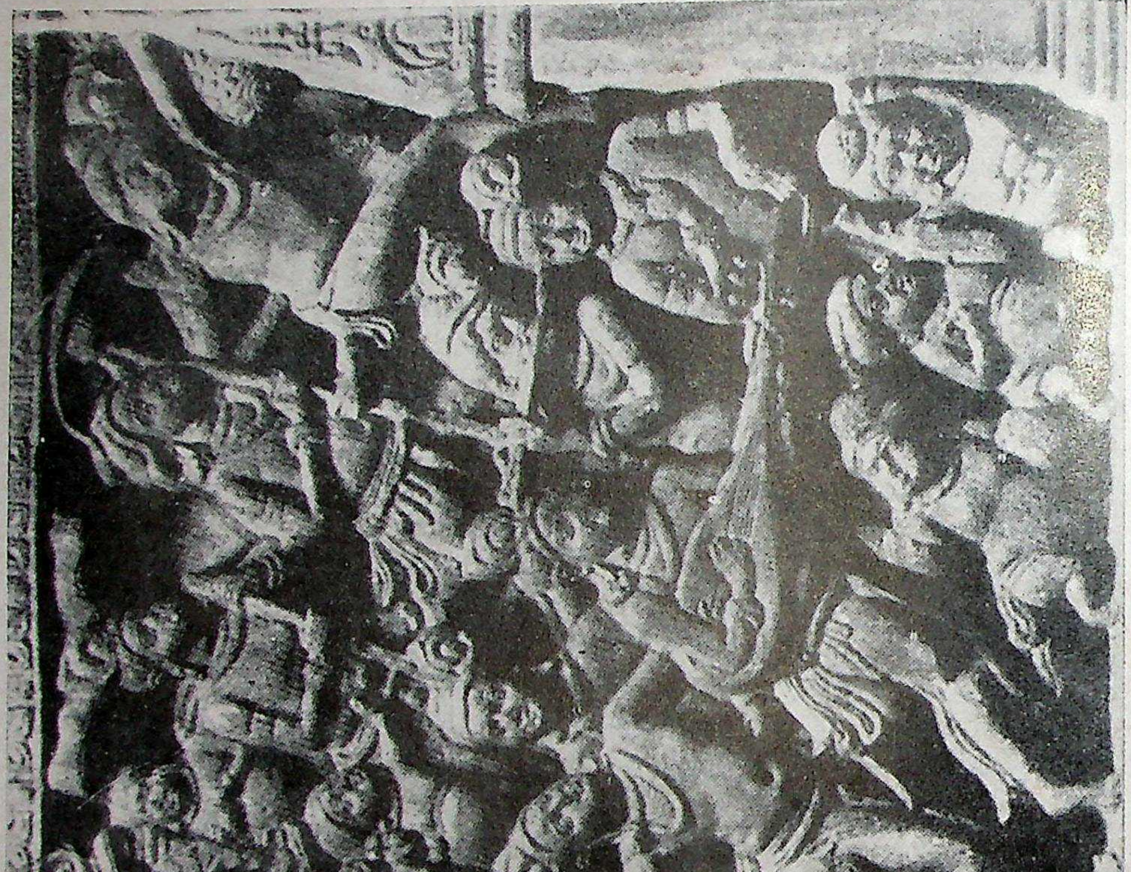


Plate 15



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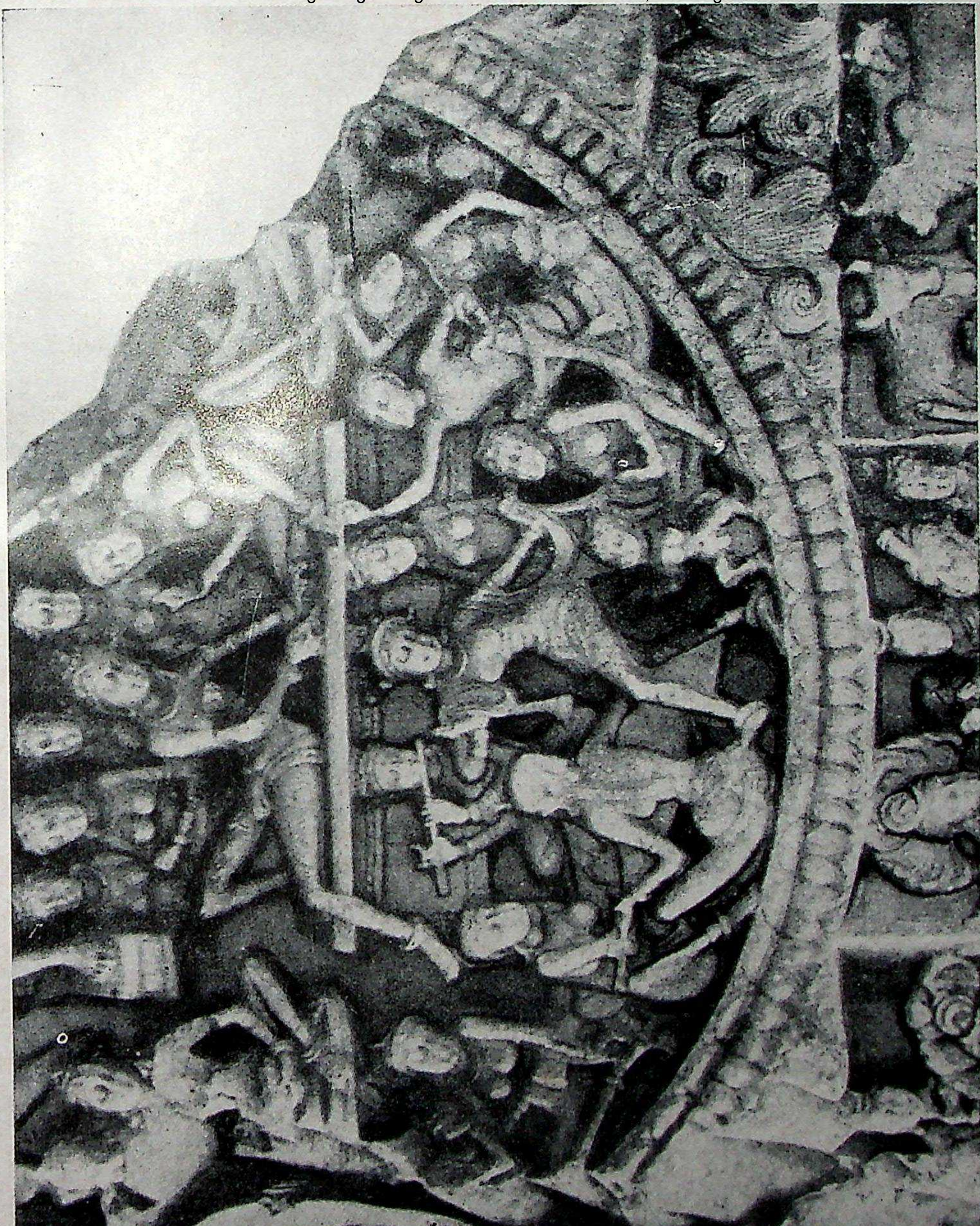

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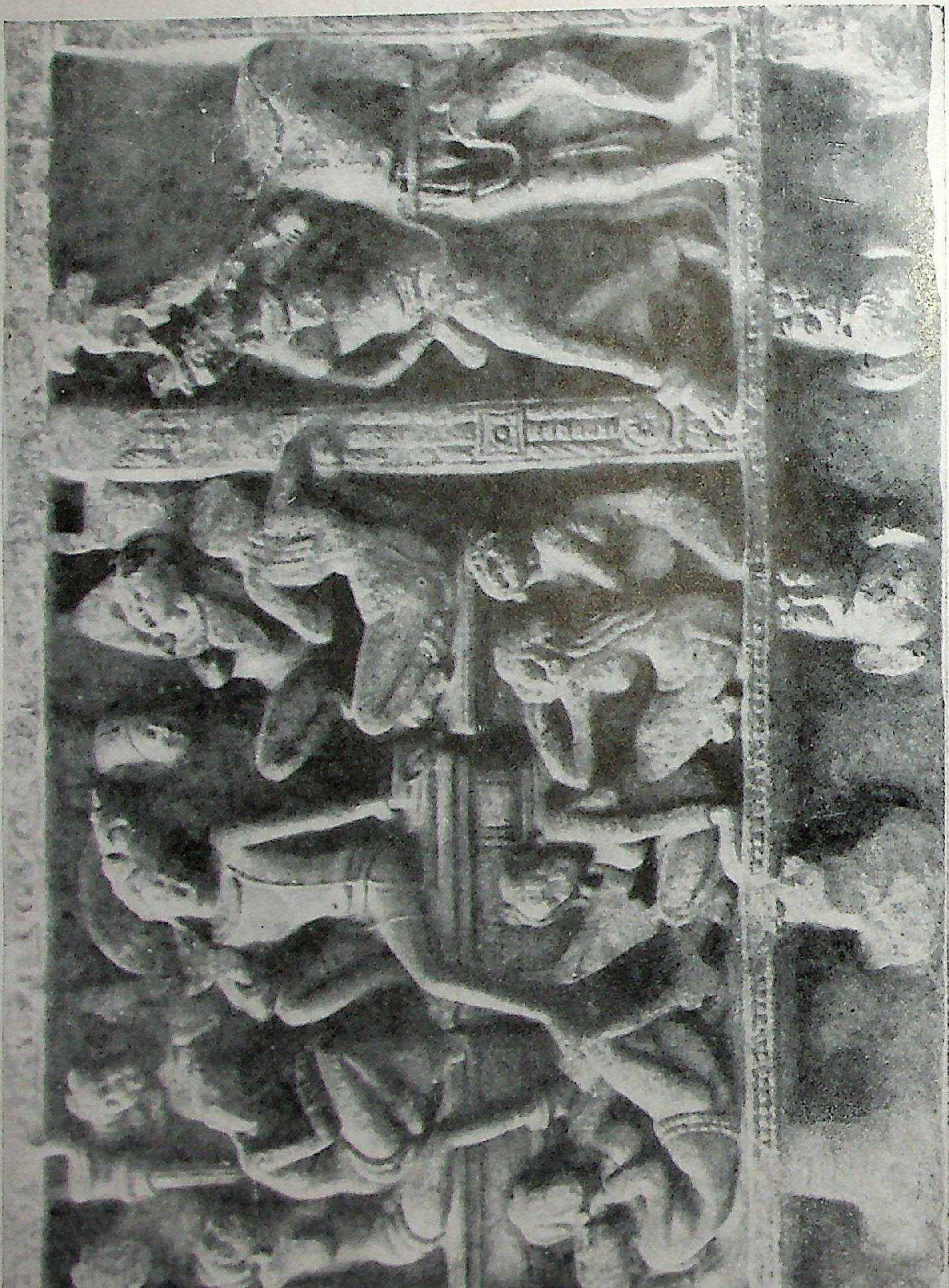

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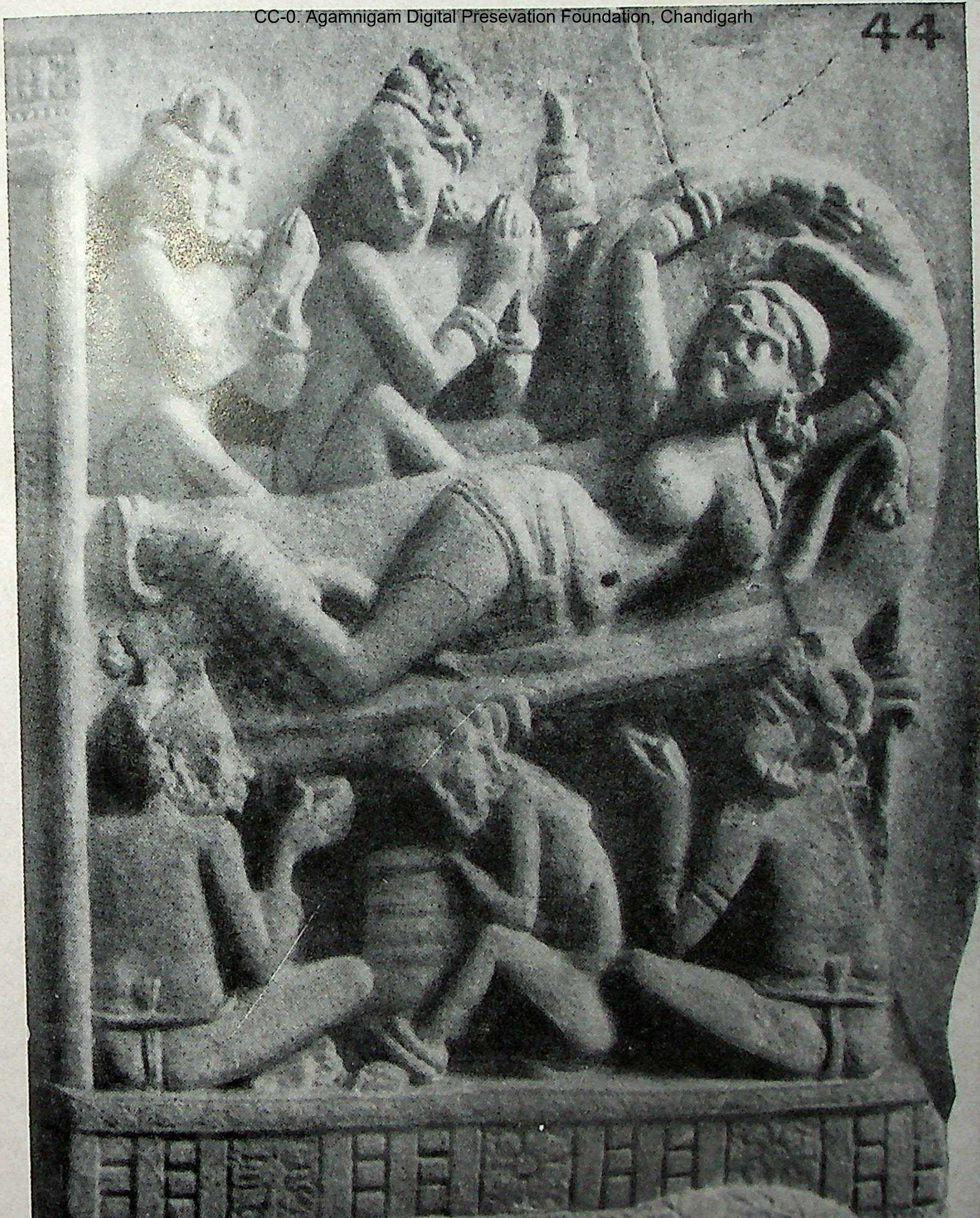

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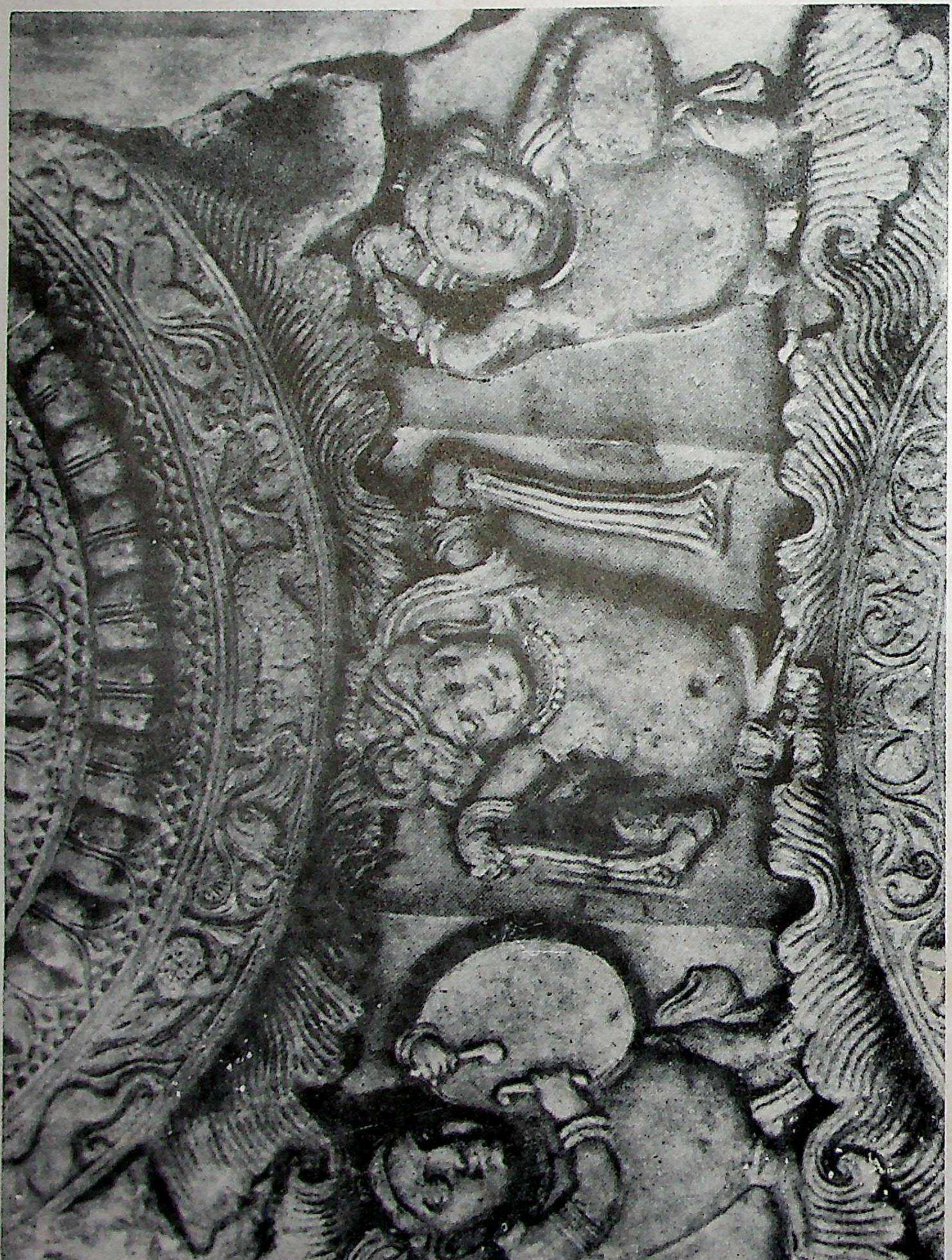
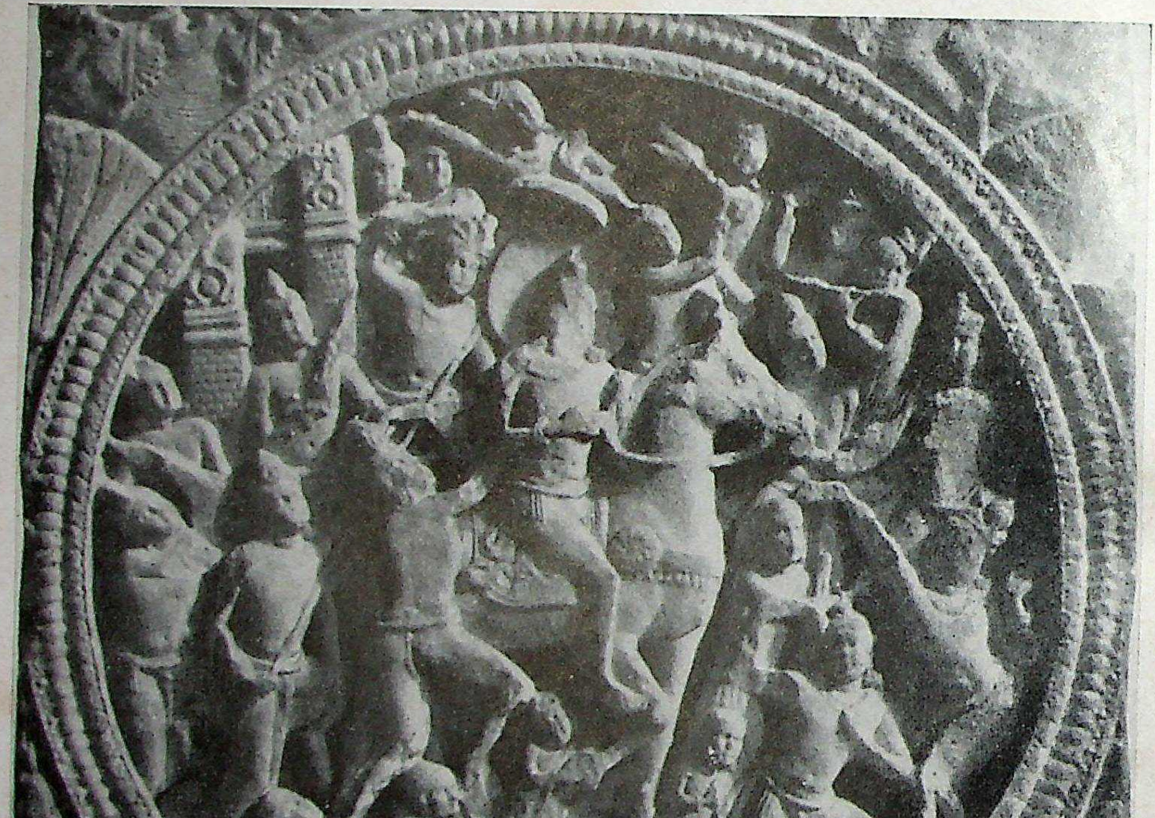


Plate 20

Plate 21



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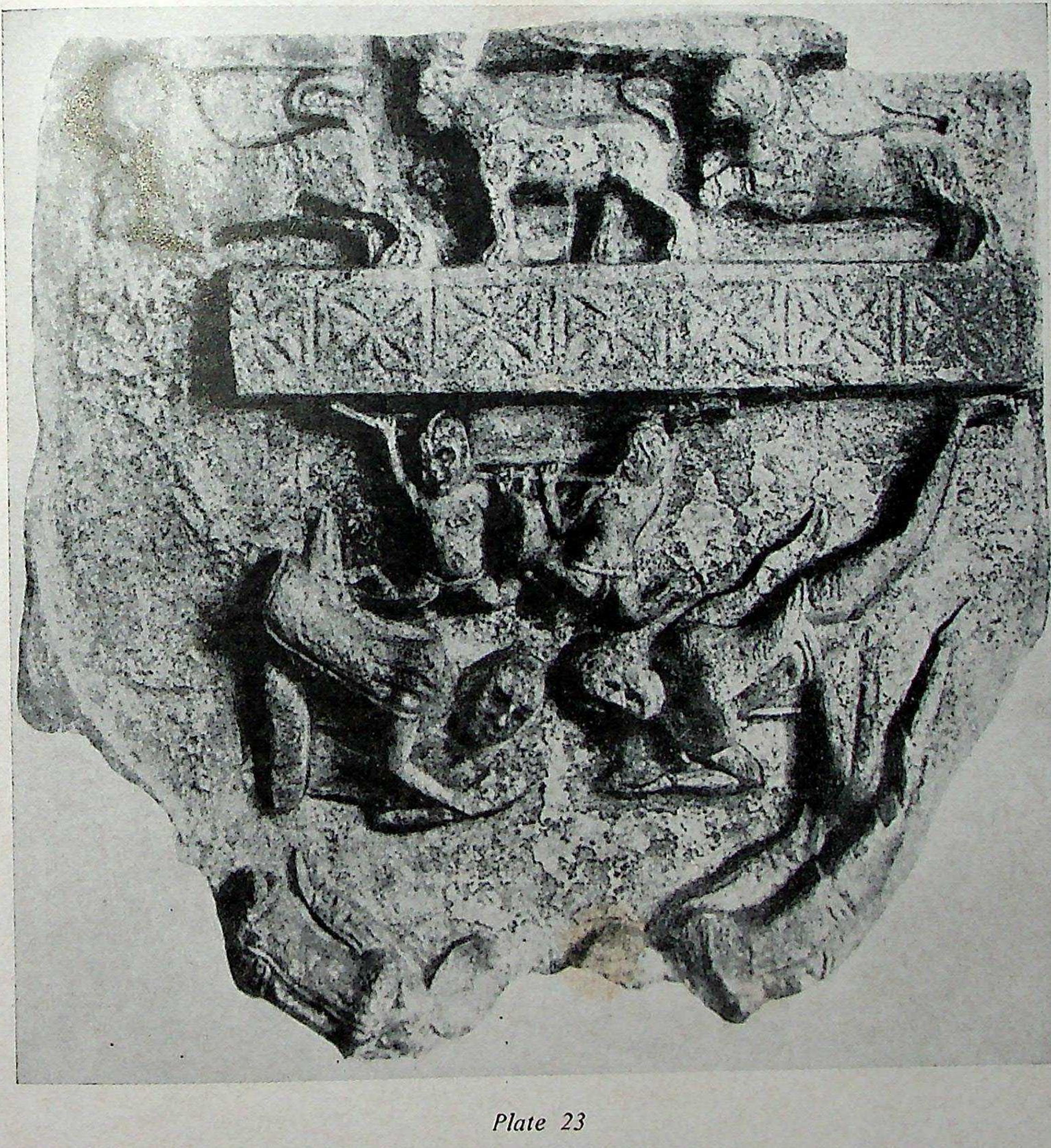


Plate 23

Plate 24

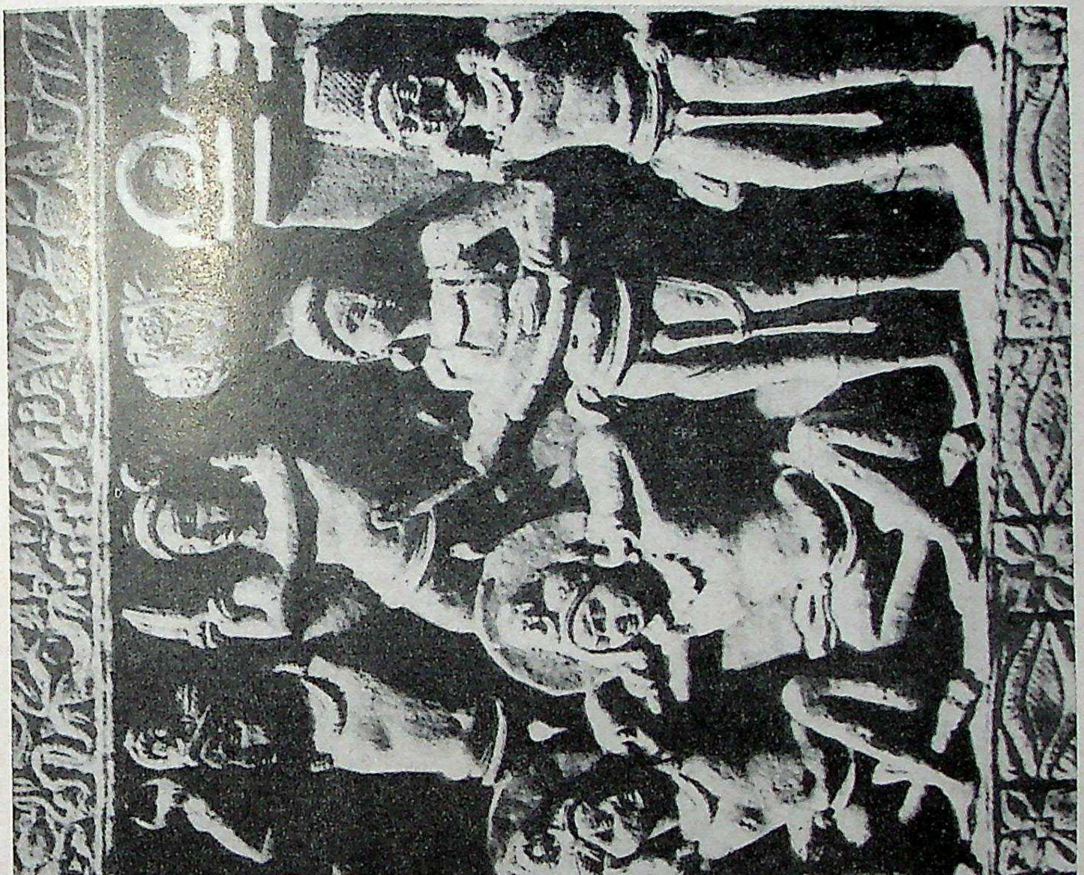


Plate 25

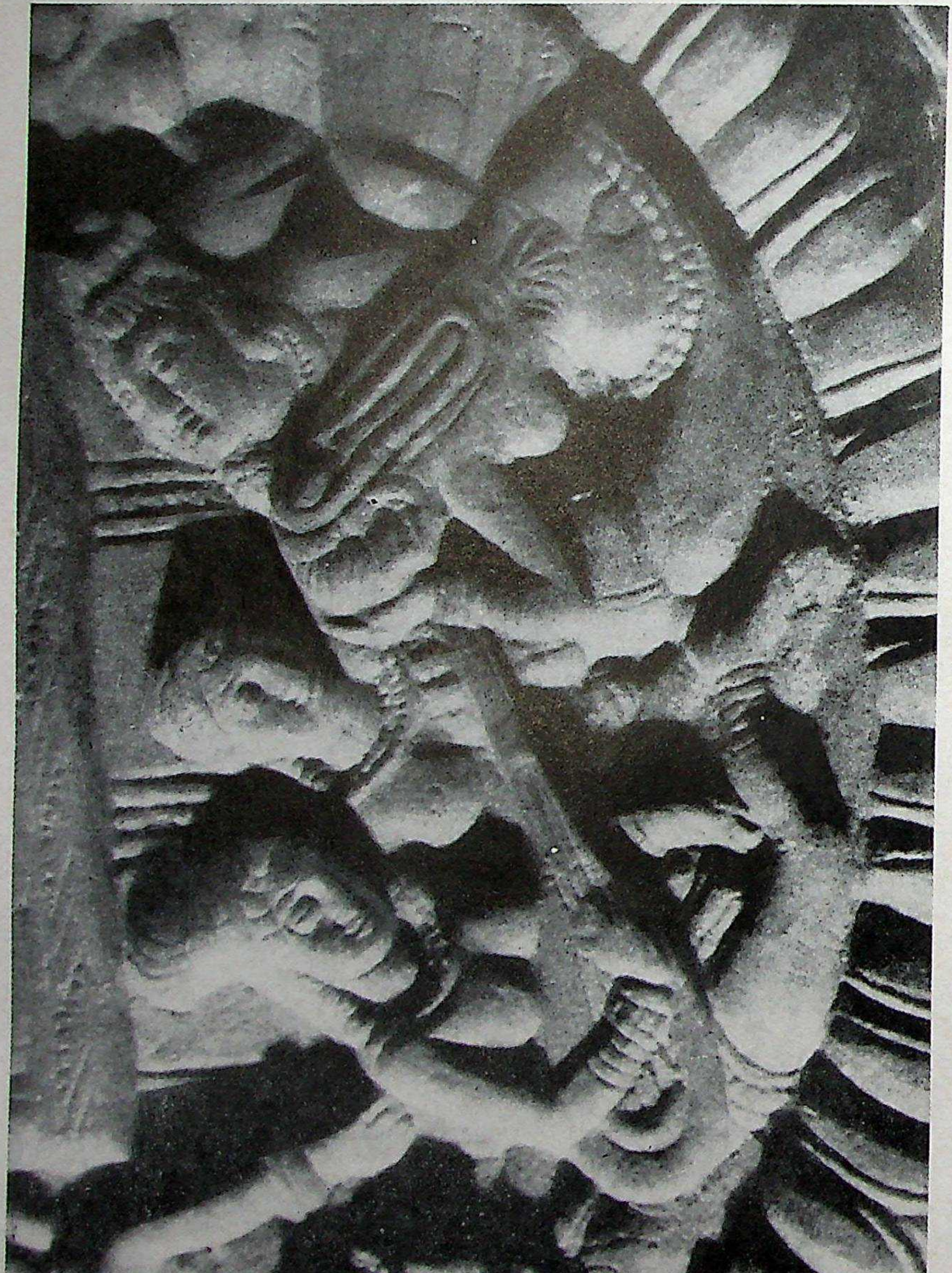
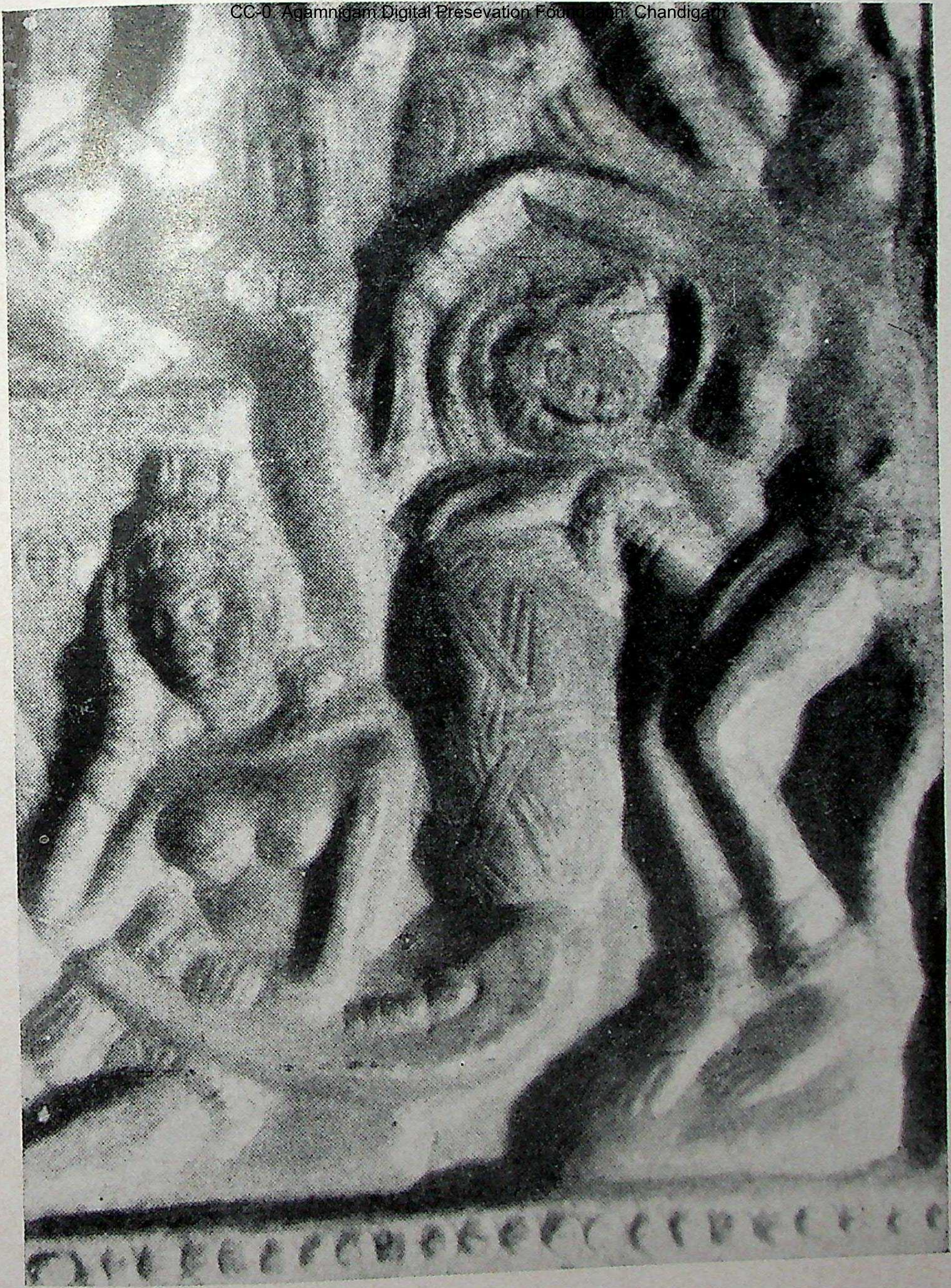


Plate 26



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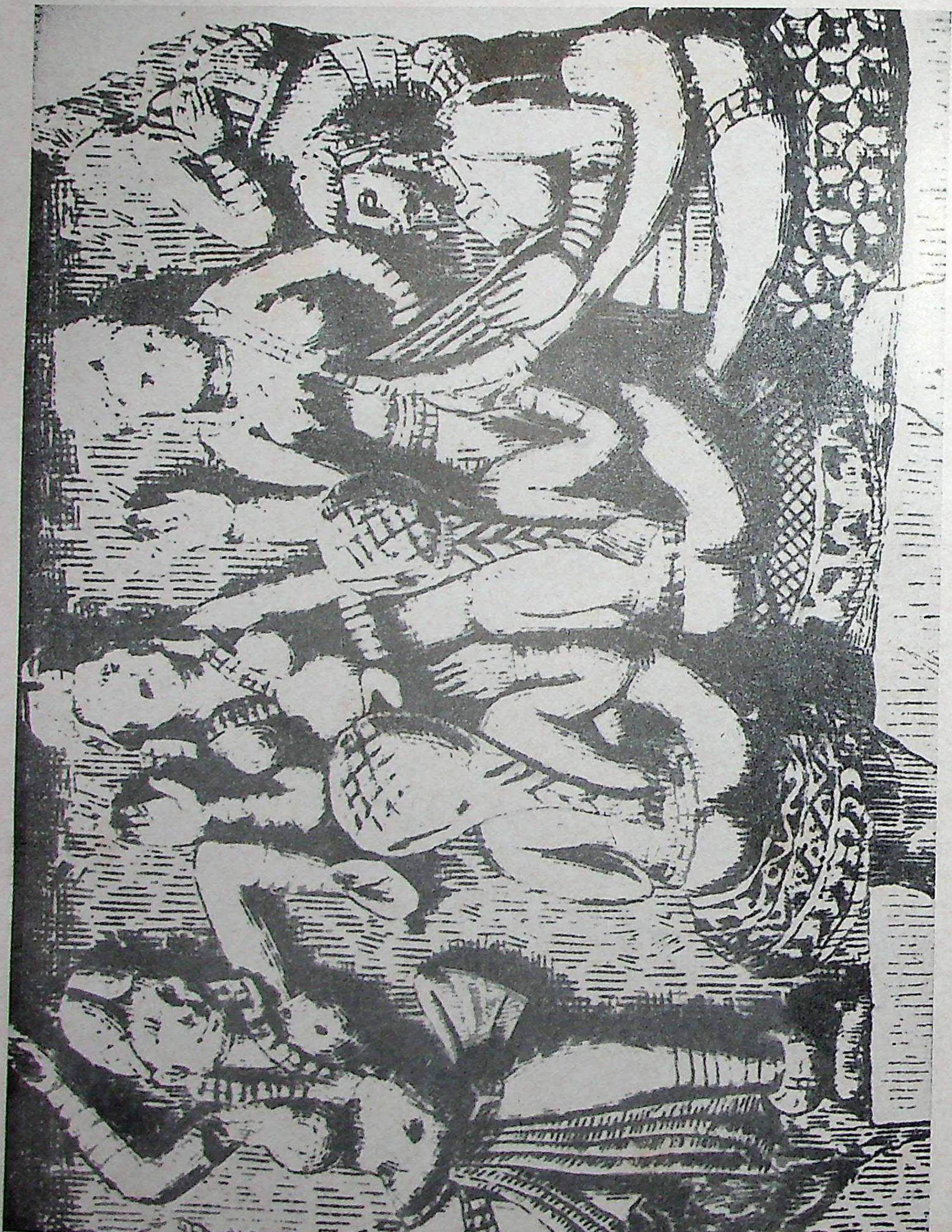
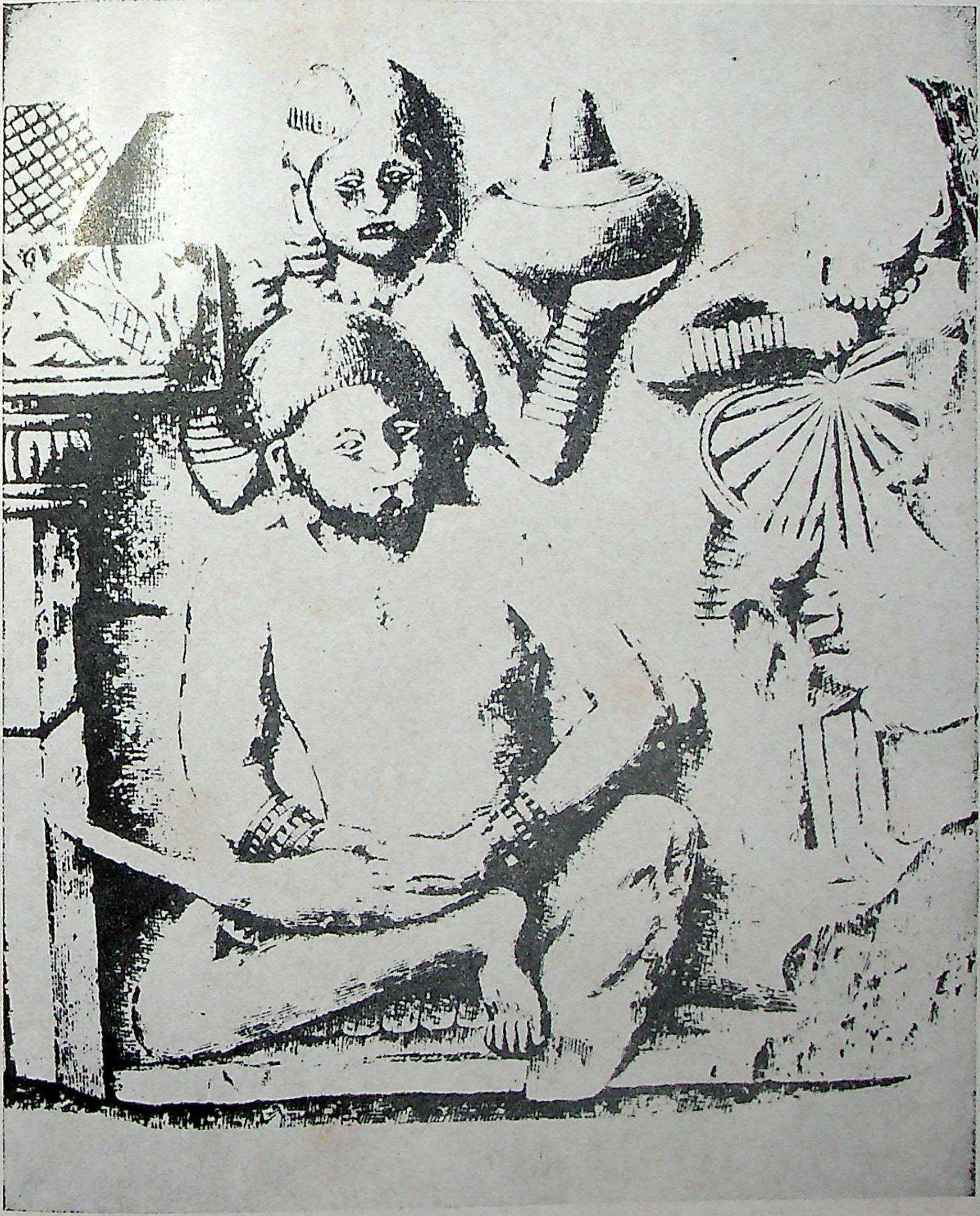


Plate 28



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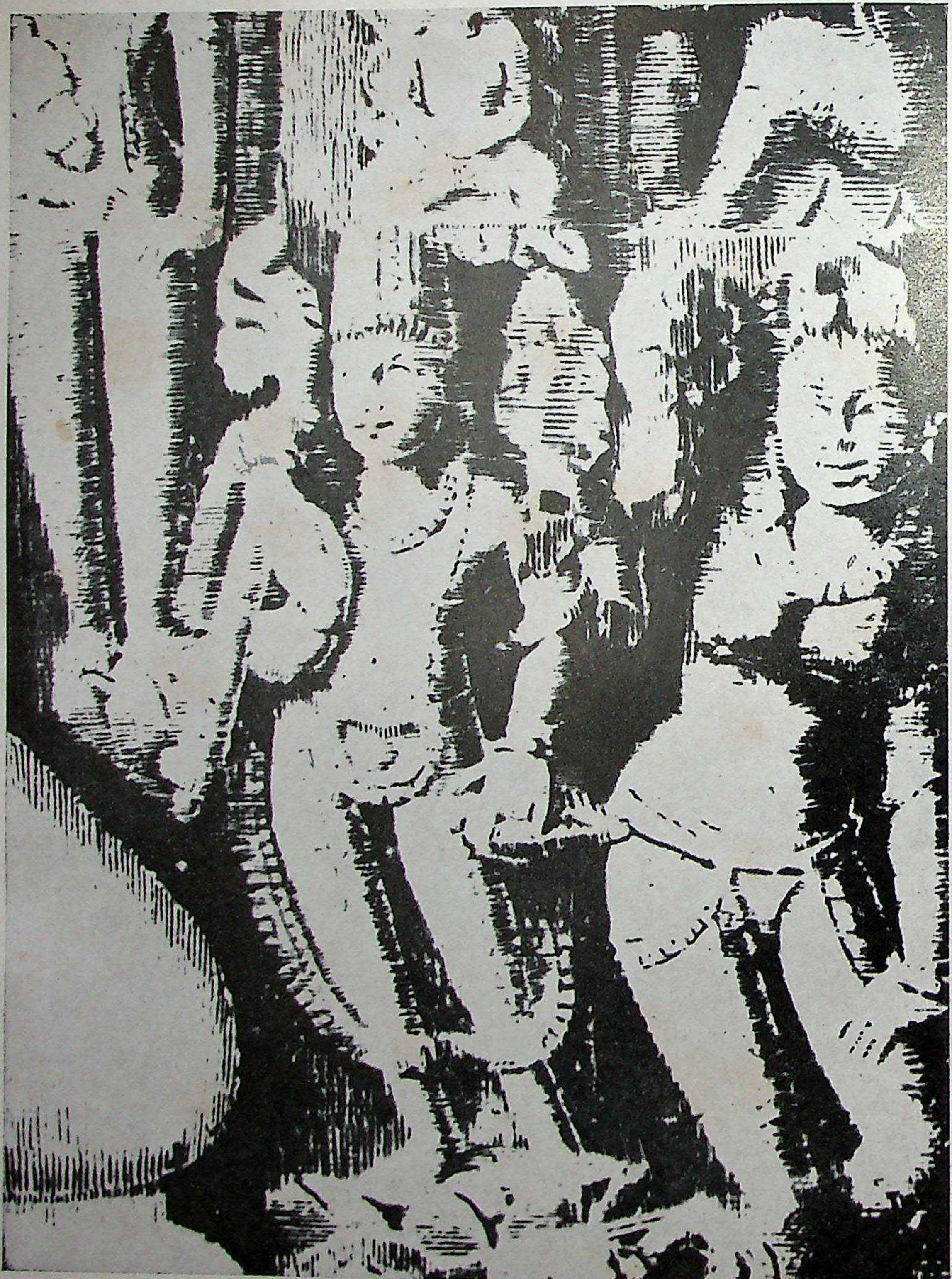
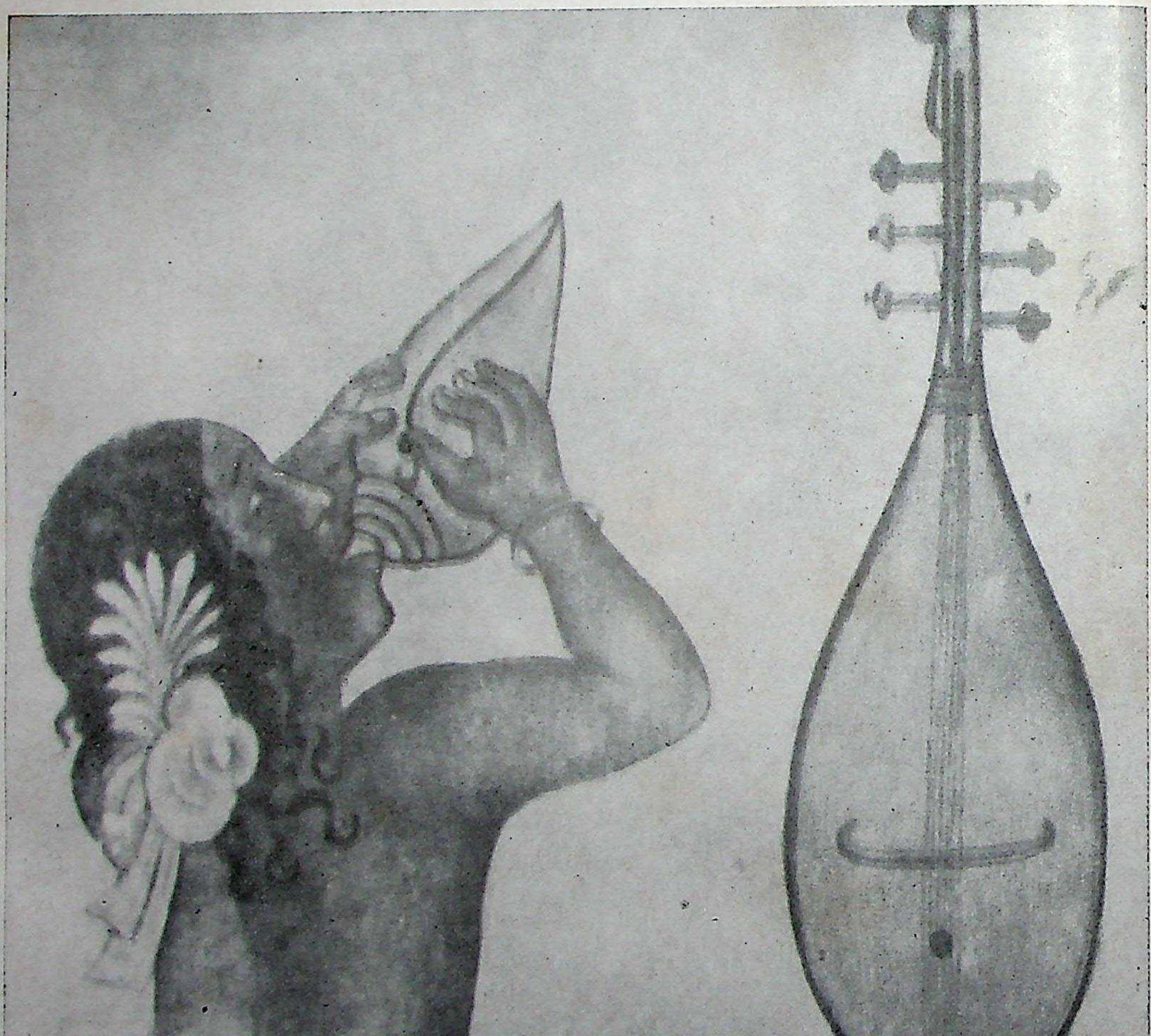


*Plate 30*

Plate 31



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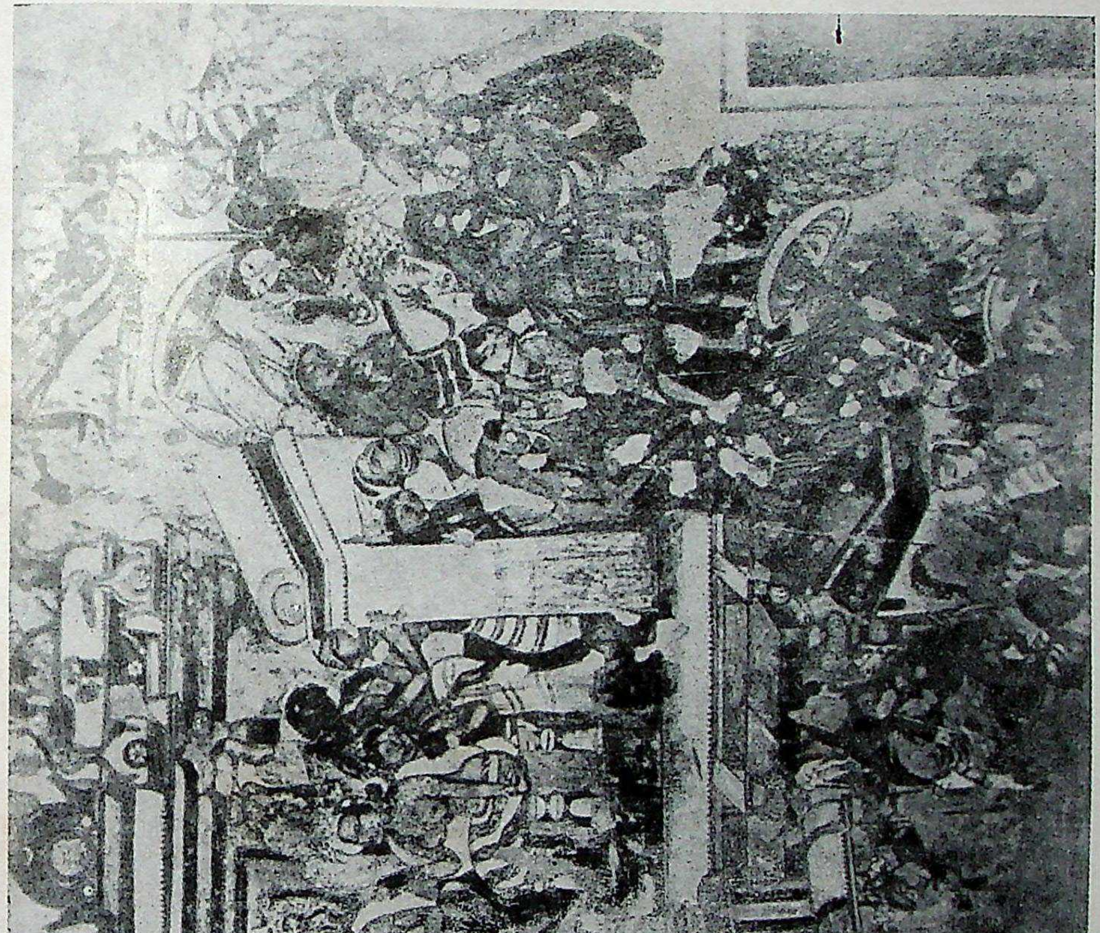


Plate 33

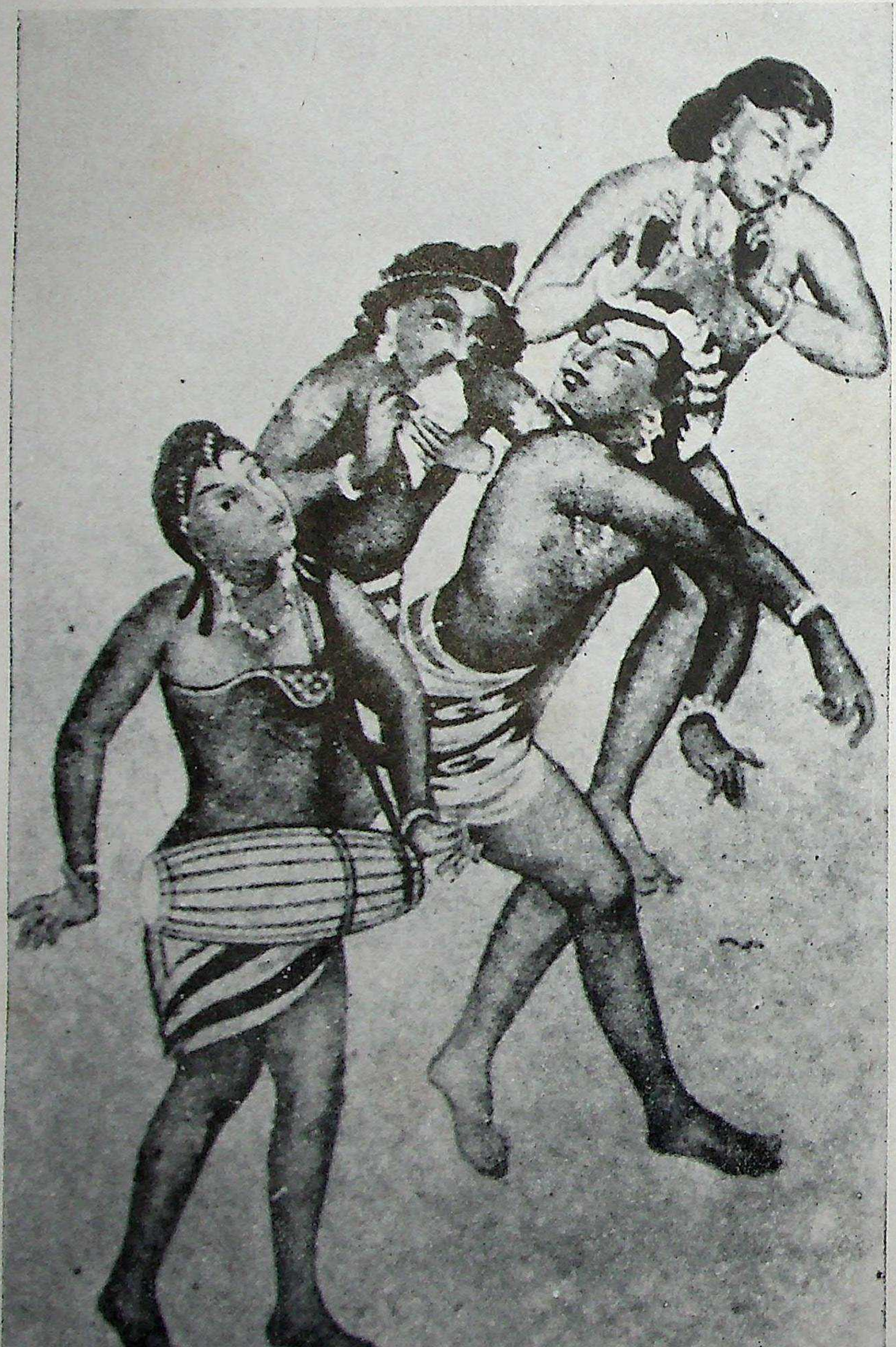


Plate 34

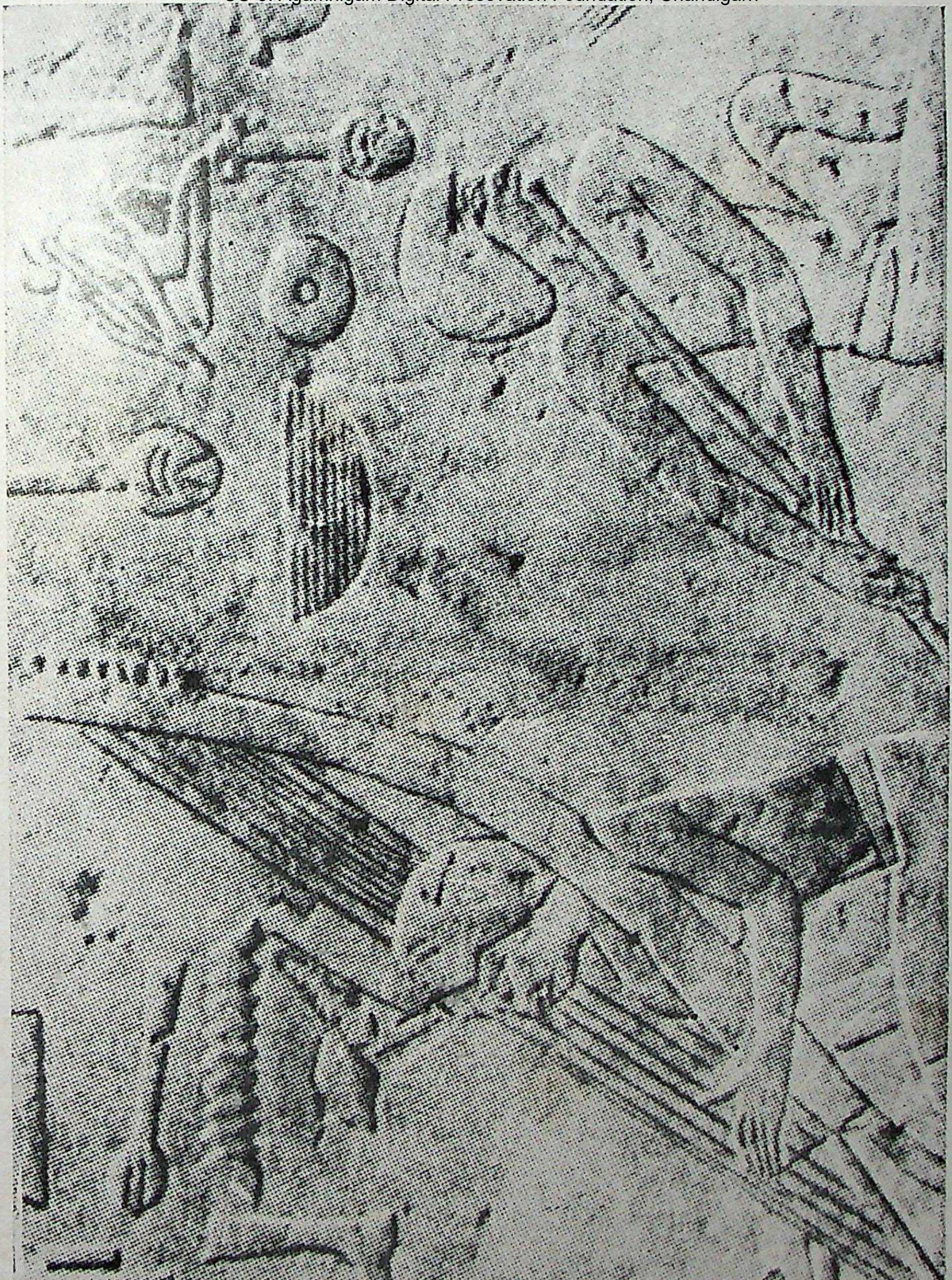


Plate 35

Plate 36

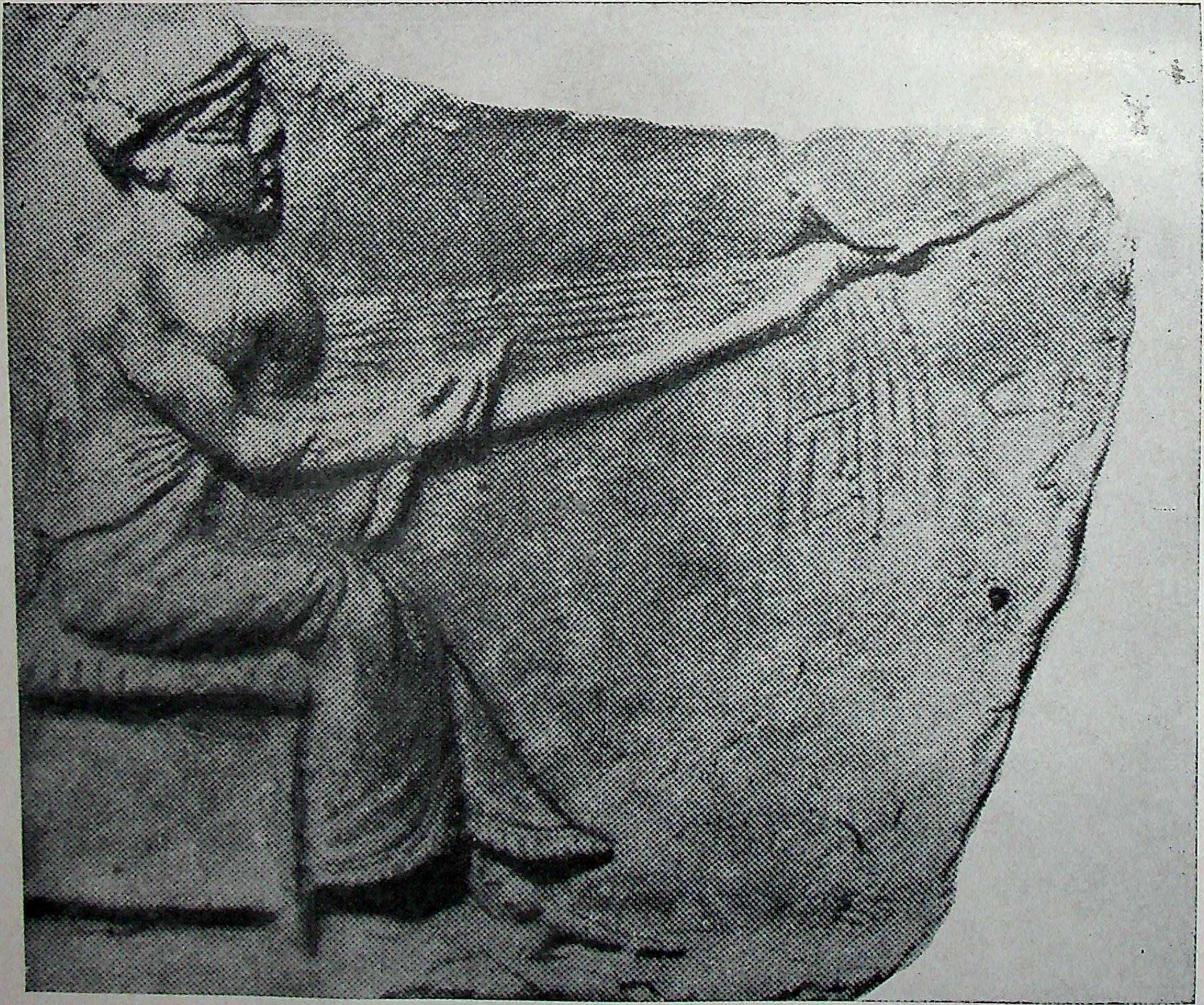


Plate 37

*Plate 38*

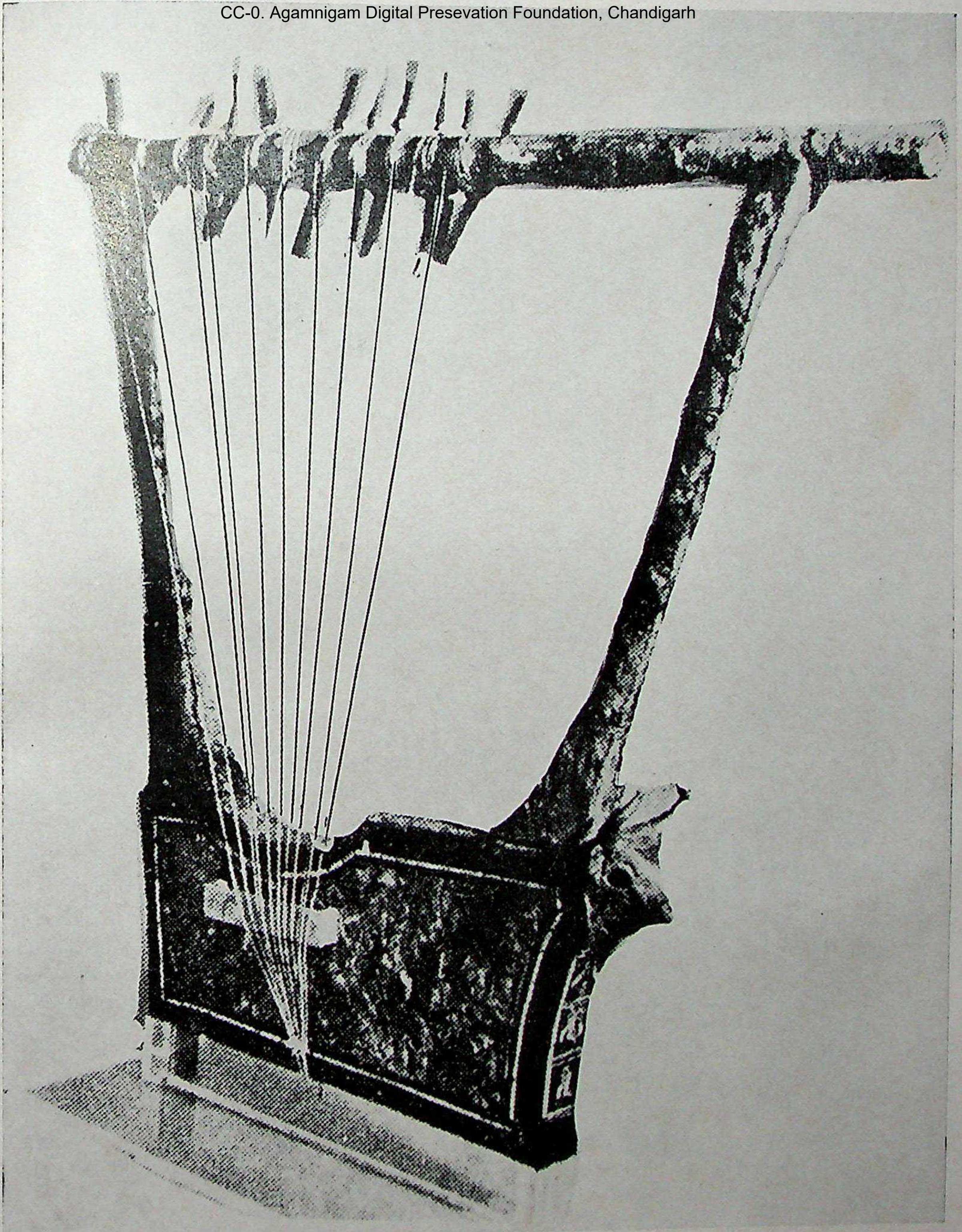


Plate 39

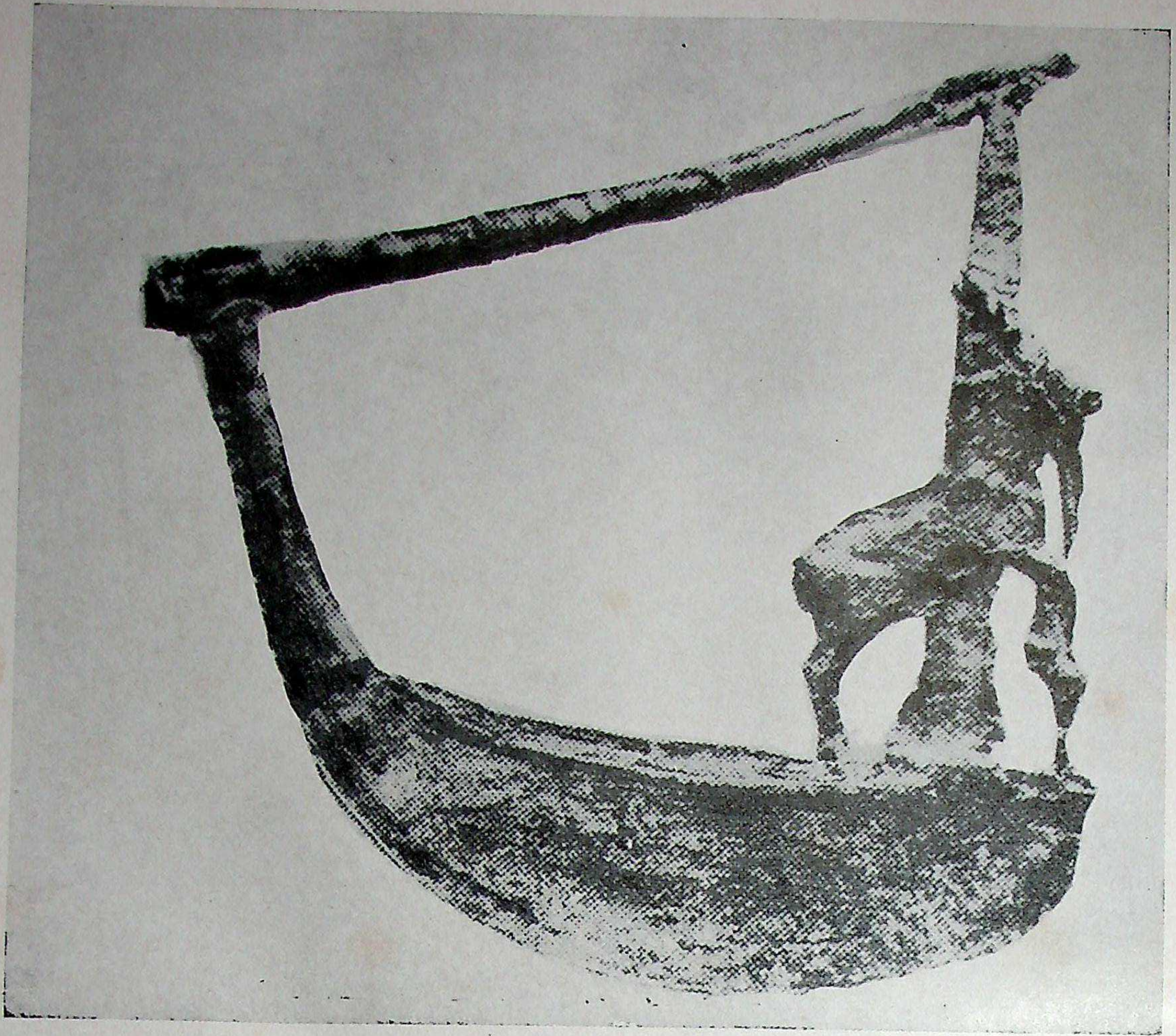


Plate 40

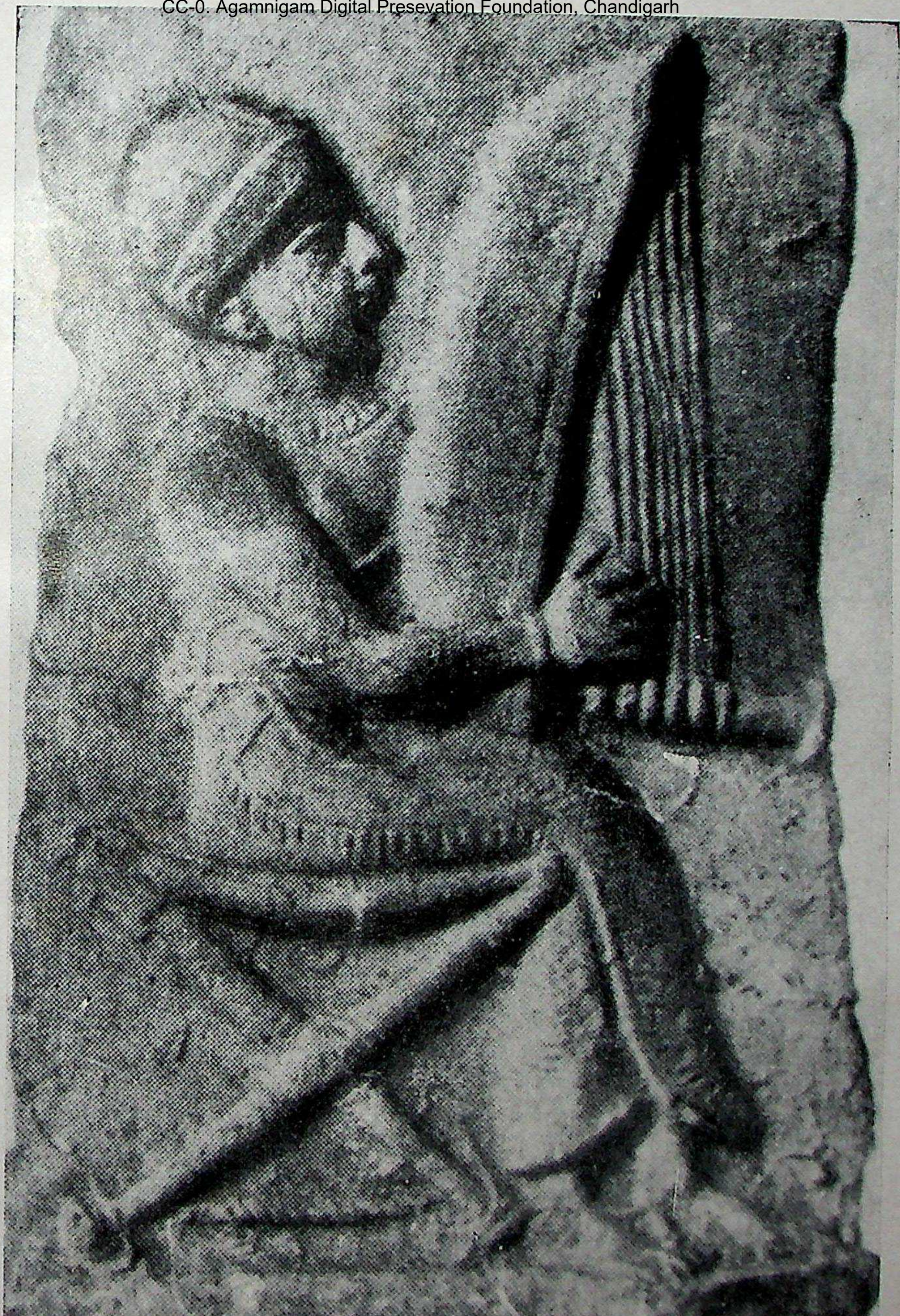


Plate 41

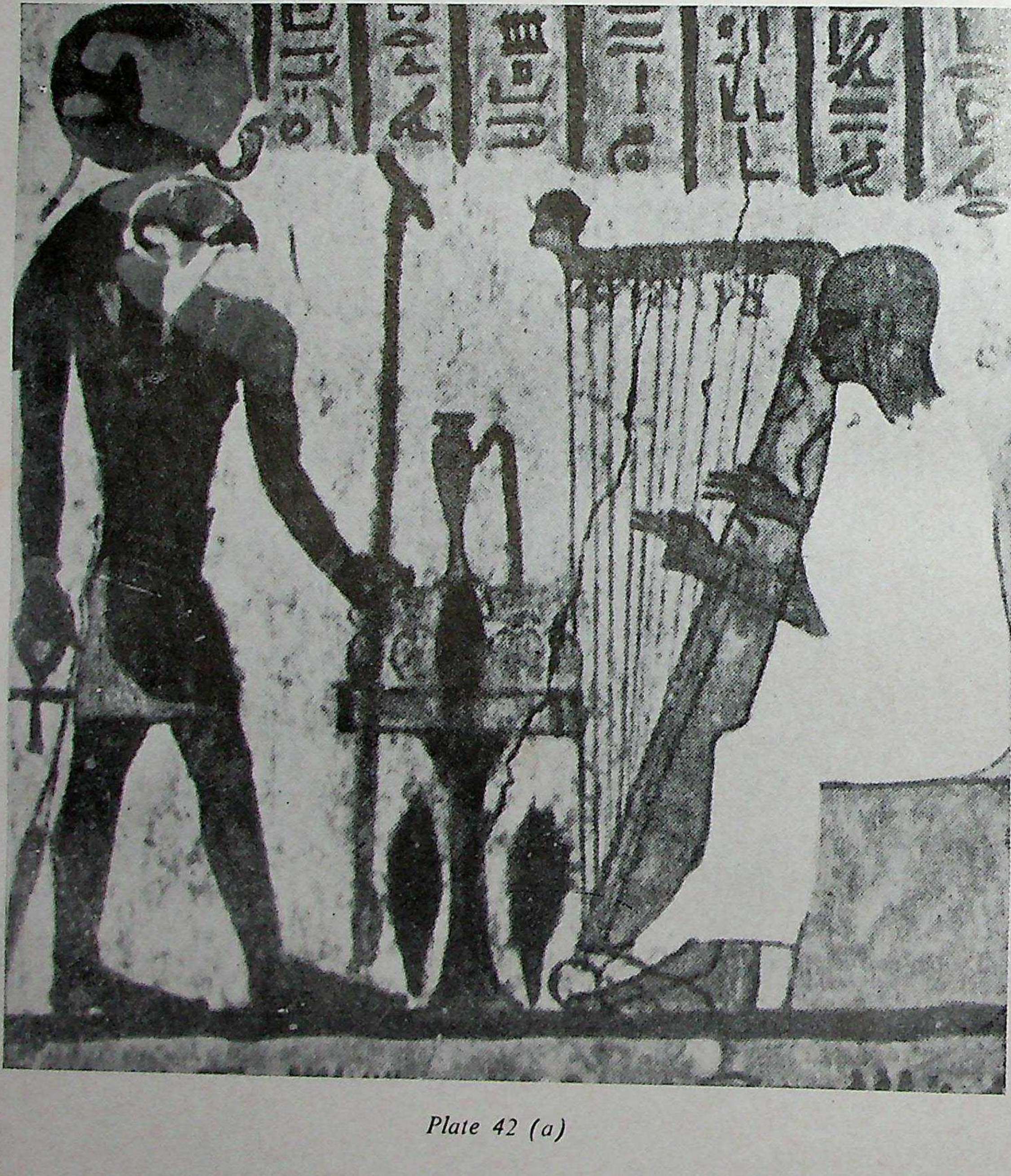


Plate 42 (a)

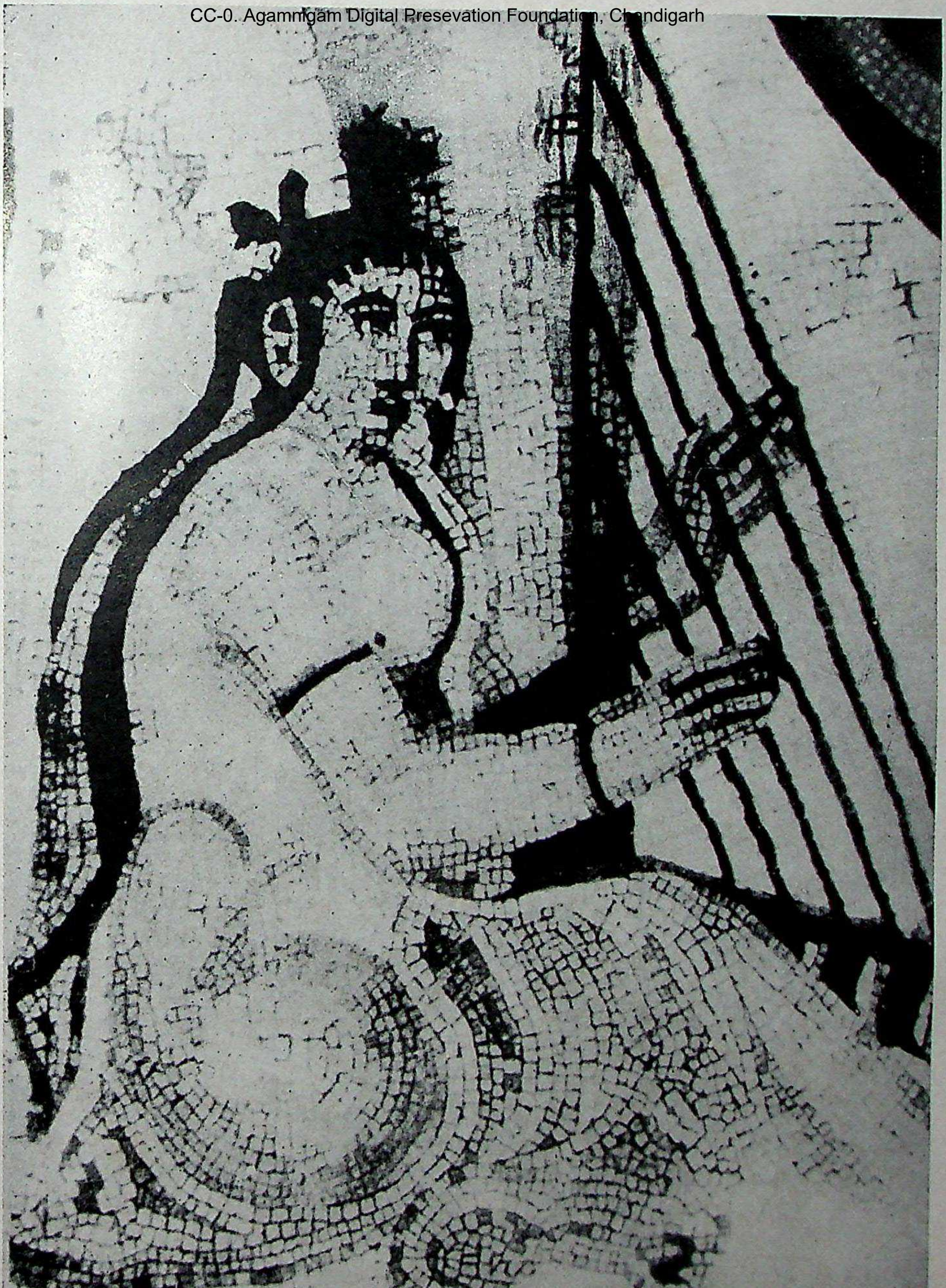
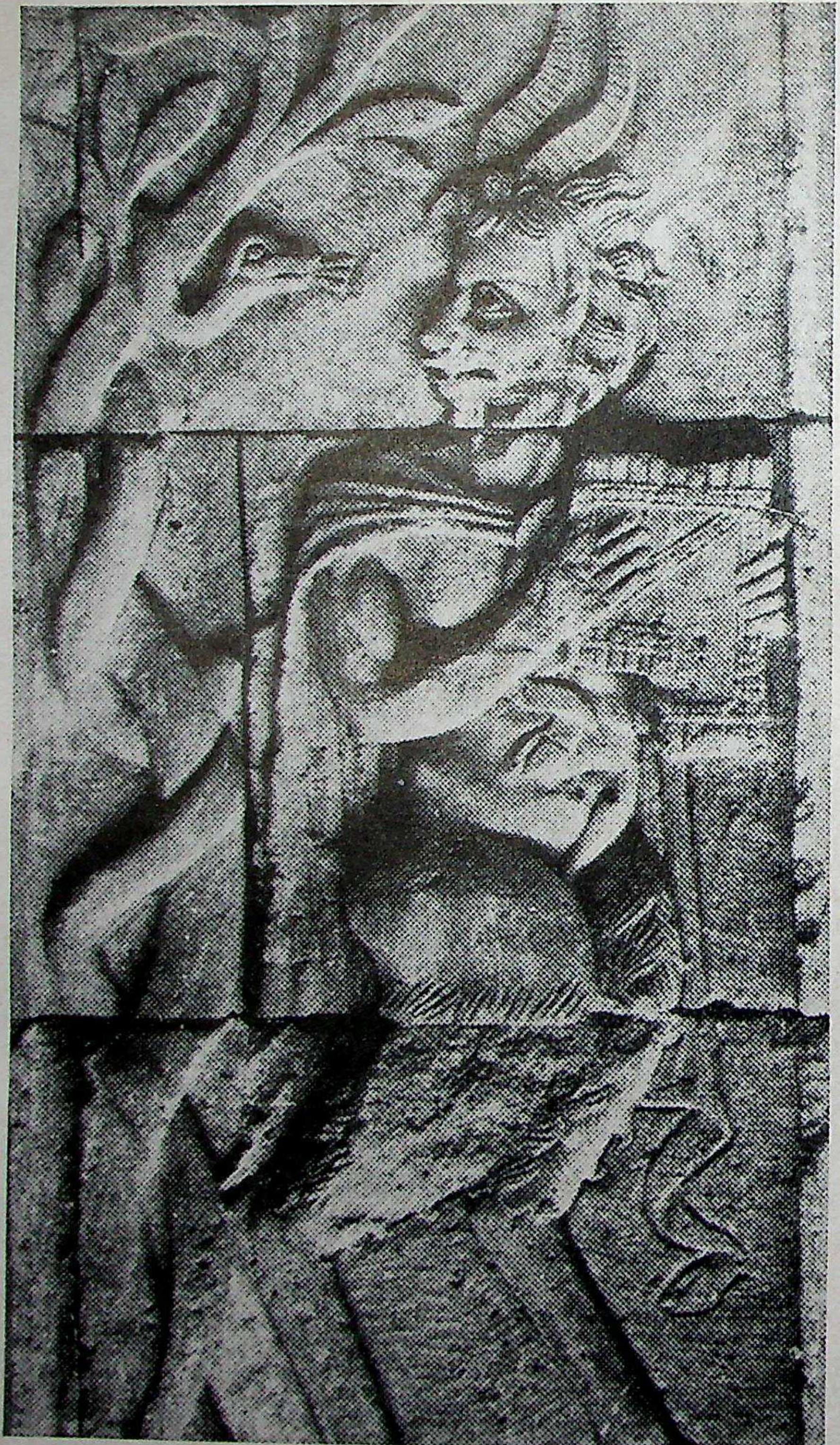


*Plate 42*

Plate 43

Plate 44



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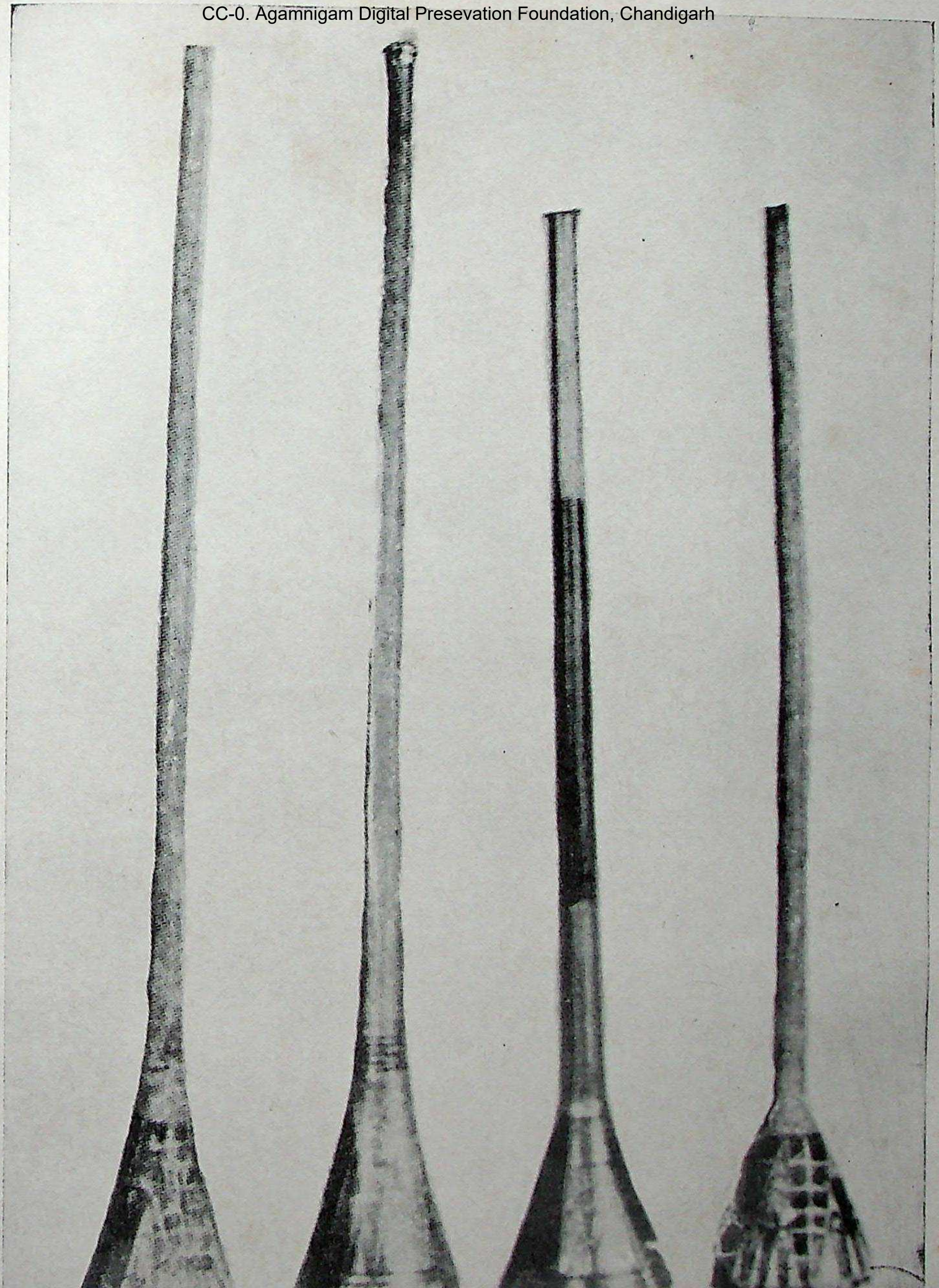

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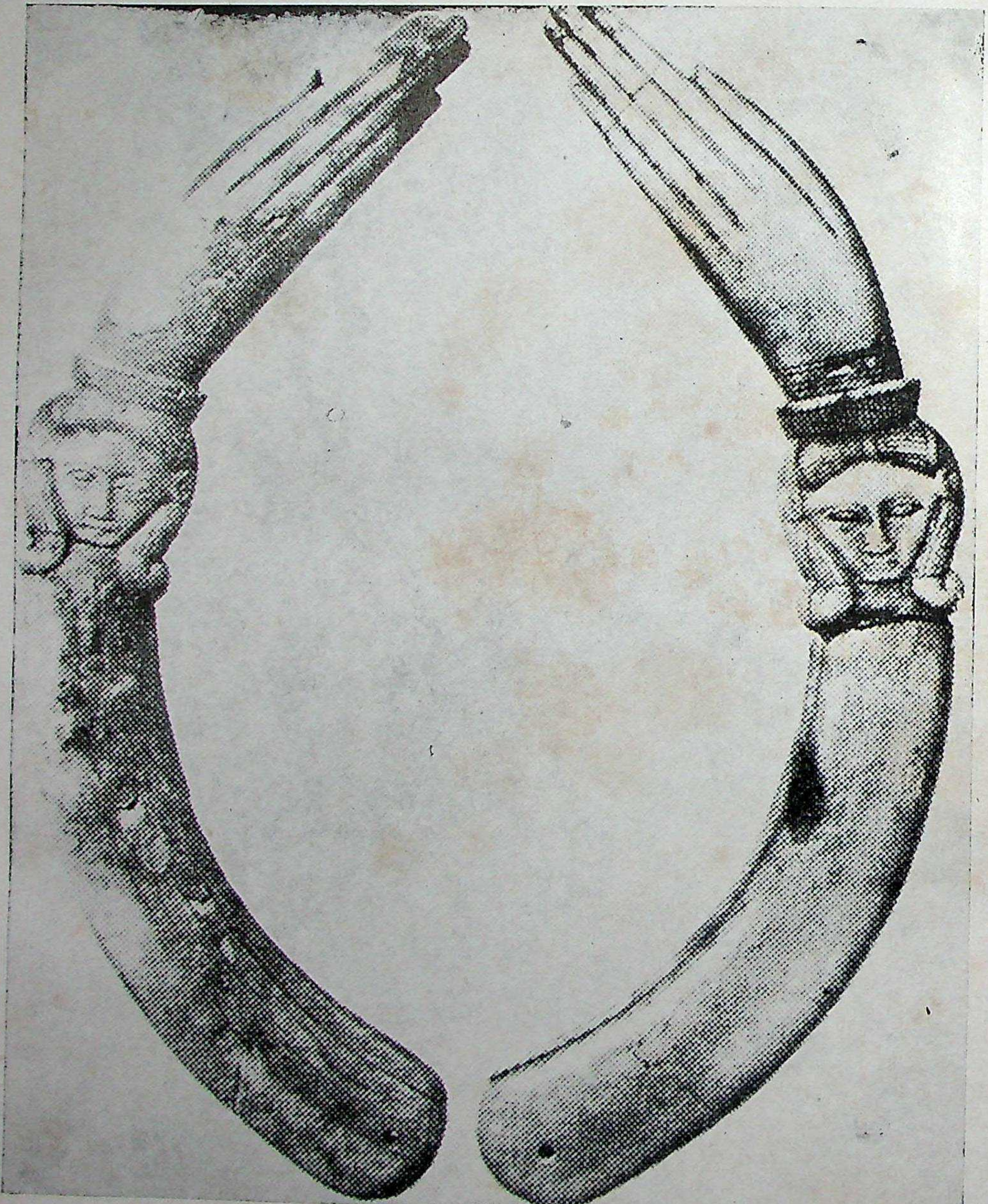

Plate 47

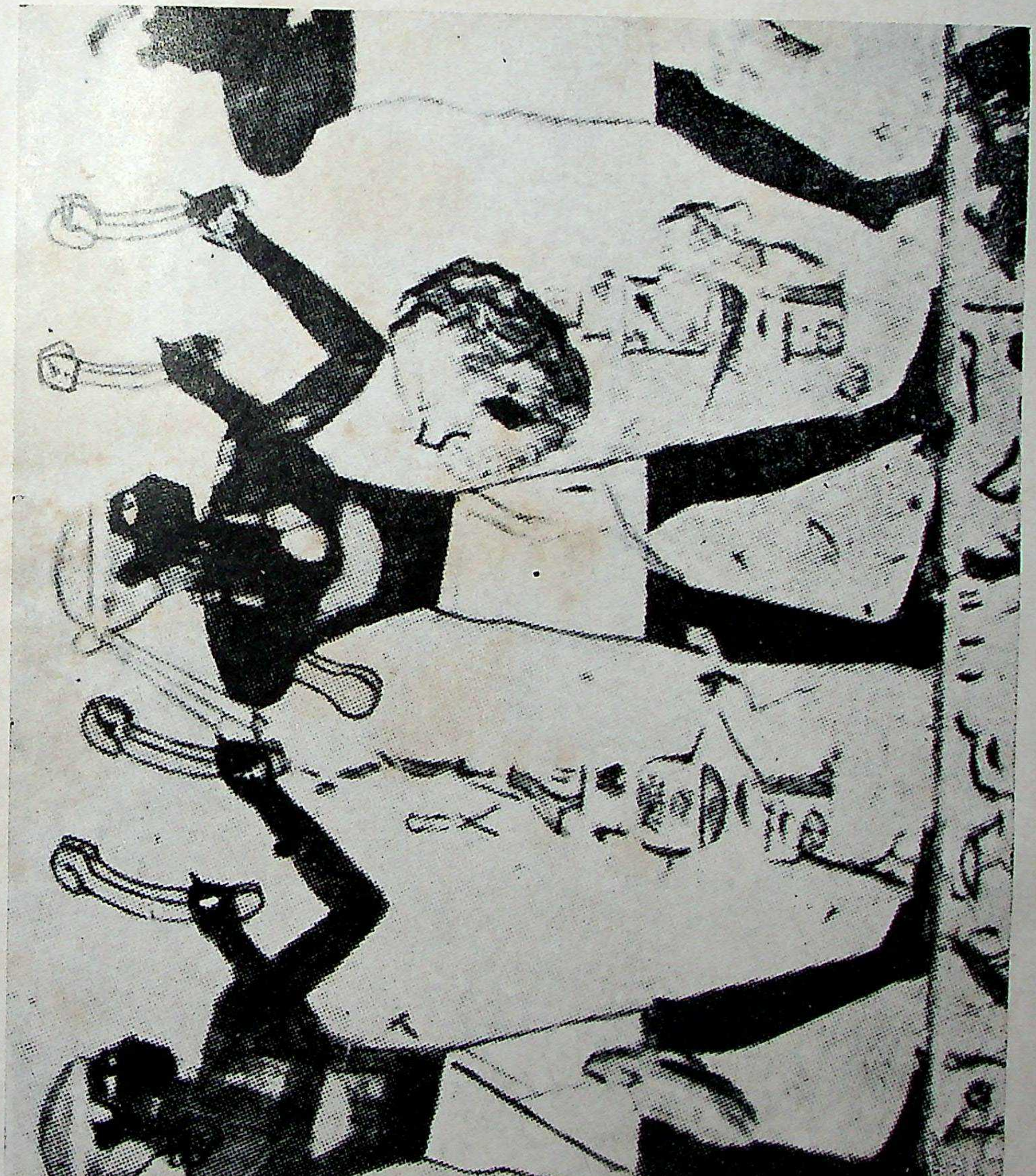

Plate 48

SUNDEEP

Sundeep Prakashan